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A Call for Action: Increasing Public Awareness of the Māui Dolphin

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A Call for Action: Increasing Public Awareness of the Māui Dolphin



Department of Conservation
Te Papa Atawhai

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WPI

A Call for Action: Increasing Public Awareness of the Māui Dolphin

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This report represents the work of four WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review. For more information about the projects, please see <http://www.wpi.edu/Academics/Project>

Abstract

The New Zealand Department of Conservation has experienced difficulties in raising public awareness of the critically endangered Māui dolphin. In order to address this problem, we interviewed Māui dolphin activists and educators to determine ways that individuals and communities can take action to help conserve this species. We also assessed current conservation education strategies and the concept of mātauranga Māori. As an outcome, the team created an educational video, a children's book and several recommendations in order to increase awareness.

Executive Summary

The Māui dolphin (*Cephalorhynchus hectori Māui*), a small coastal dolphin that is endemic to New Zealand, has been classified as critically endangered with an estimated 55 individuals left (Baker et al., 2013; Currey, Boren, Sharp, & Peterson, 2012). Their population is endangered due to numerous threats, as well as their slow population growth rate of 1.8% (Currey et al., 2012). The largest threats to the Māui dolphin are fishing related threats such as set net and trawl fishing, which will account for 95.5% of all Māui dolphin deaths by the year 2017 if all threats remain at current levels (Currey et al., 2012). If nothing is done to address these threats, it is predicted the Māui dolphin will go extinct by the year 2031 (NABU International:Foundation for Nature, 2013).

The New Zealand Department of Conservation (DOC) is currently responsible for developing and administering a Threat Management Plan in order to mitigate human induced threats to the Māui dolphin (Department of Conservation *Te Papa Atawhai*, n.d.-b). Part of this plan includes bans on net fishing in the Māui dolphin's habitat. In order to determine the extent of the Māui dolphin habitat, DOC heavily relies on the public to report sightings (Department of Conservation *Te Papa Atawhai*, n.d.-b). There is contention over this Threat Management Plan since conservationists and non-government organizations argue that the plan does not do enough to protect the dolphin, while industries, such as the fishing industry, argue that the plan is adequate or excessive.

DOC aims to raise public awareness of the critically endangered state of the Māui dolphin in order to gain individual and community support for Māui dolphin conservation. An important part of this plan is to raise awareness in children through conservation education (Department of Conservation *Te Papa Atawhai*, n.d.-b). Mātauranga Māori, the indigenous learning system of the native Māori, is also an important concept to consider when raising public awareness of the Māui dolphin (Barriball, 2014).

Goals, Objectives and Methods

The ultimate goal of this project is to involve the general public with Māui dolphin conservation efforts by identifying ways that individuals and communities can help, while also targeting schoolchildren by incorporating the principles of

mātauranga Māori and conservation education. We accomplished this goal by conducting nine interviews with key individuals involved in Māui dolphin conservation to gain their current perspectives on conservation efforts. We also interviewed seven teachers to gain perspective on teaching conservation education to schoolchildren and the concept of mātauranga Māori as well as four surfers to find ways on how surfers can be involved in Māui dolphin conservation efforts.

In order to achieve our project goal, the team developed the following three objectives:

Objective 1: Understand the perspectives of Māui dolphin conservation stakeholders, such as activists and fishermen, regarding current conservation efforts.

The team asked the key individuals several questions that focused on what they saw as the largest threats to the Māui dolphin, the largest obstacle to its conservation and what the dolphin meant to them and their culture. These questions aimed to understand the varying perspectives these individuals held on Māui dolphin conservation and relay this information back to DOC.

Objective 2: Identify practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation.

The second objective aimed to find additional ways to help the Māui dolphin population, aside from government policy change. In order to achieve this, the team asked the key individuals what they believed both DOC and the general public could do to help the Māui dolphin. The team also interviewed surfers to find ways to encourage the surfing community to report sightings and submit pictures and videos of the Māui dolphin to DOC.

Objective 3: To acquire insight into mātauranga Māori and conservation education from Raglan educators and community activists for the purpose of developing outreach materials that encourage more widespread engagement with Māui dolphin conservation initiatives.

The team sought to gain a better understanding of mātauranga Māori from both activists of Māori descent and teachers so that it may be incorporated into awareness

materials for the Māui dolphin. The team also worked with schoolteachers to find effective methods of conservation education in order to educate children about the Māui dolphin.

Findings

1. Fishermen no longer see fishing as the biggest threat to the Māui dolphin population because they have not seen the Māui dolphins beyond the set net ban areas.
2. Most activists still see fishing as the biggest threat to the Māui dolphin and believe the current fishing restrictions are not adequately protective and that further set net bans are needed.
3. Government inaction is seen as an obstacle preventing further protection measures due to the perceived lack of economic value of the Māui dolphin.
4. Stakeholders identified several actions individuals and communities could take to protect the Māui dolphin, including looking after their land, reporting Māui dolphin sightings to DOC, videotaping the Māui dolphin, joining effective and impactful organizations that contribute to Māui dolphin conservation, and taking action against the government.
5. Positive awareness material is an effective method of promoting Māui dolphin conservation, as it will interest more people as opposed to a grim message about the Māui dolphin's critically endangered state.
6. New Zealanders along the west coast have a cultural connection to the dolphin because of first-hand, personal experiences with the dolphin and awareness campaigns that have greatly contributed to this connection.
7. Local Māori, along the west coast of the North Island, have a strong cultural and spiritual connection to the dolphin that is embedded within their learning system, mātauranga Māori, due to iwi ancestry and environmental stewardship.
8. Mātauranga Māori has many similarities to Western science and is just as powerful to help educate children about conservation and the importance of saving the Māui dolphin.
9. The most effective method to connect and resonate with children about conservation education is a practical, hands-on approach.

10. Teachers believe that DOC only needs to supply supplementary materials about the conservation of the Māui dolphin, opposed to entire lesson plan, because the teachers want to integrate conservation into their normal curriculum.
11. The main motivation for including conservation education in the classroom is teacher interest due to the fact that enviroschools have a flexible curriculum and therefore can choose what materials they would like to teach.

Recommendations

Our background research, findings and personal experiences helped the team to shape our recommendations to DOC. We strongly recommend that:

1. DOC liaises more with fishermen on the West Coast of the North Island, both recreational and commercial, so that they may be further involved in Māui dolphin conservation.
2. DOC further liaises with local Māori along the Māui dolphin's range regarding Māui dolphin conservation efforts, so that Māori may express their concerns and recommendations to DOC.
3. DOC provides public awareness material about the scientific evidence of the specific threats to the Māui dolphin population, both human-induced and non-human-induced.
4. DOC distributes updates via email, mail and/or its website on the status of the conservation efforts of the Māui dolphin to all interested individuals and organizations.
5. DOC and other NGOs distribute awareness material that contains a positive message about the Māui dolphin.
6. DOC shares the team's educational video, entitled *Māui Dolphin: Treasure of the Sea*, they created on their website, at Māui Dolphin Day and other events for Māui dolphin conservation.
7. DOC continues to increase signage on beaches and docks informing the public on how to report sightings of the Māui dolphin along the West Coast.
8. The Raglan community creates signs informing the public about the importance of the Māui dolphin to this area and that DOC supports this initiative if necessary.

9. The public take and share videos and photos of Māui dolphins and for DOC to encourage this initiative by creating an area on their website where people can upload this footage.
10. The public take actions to help the Māui dolphin and that DOC promotes these actions through media, posters, and children's programs.
11. DOC works to interest teachers in teaching about Māui dolphin conservation by distributing relevant supplementary lesson material to teach to their children about the Māui dolphin.
12. Teachers involve a hands-on, practical approach to lessons about the Māui dolphin by interacting with their local environment.
13. DOC publishes and distributes the children's book about the Māui dolphin, entitled *Meet the Māui Dolphin*, created by the team.

Conclusion

Our project sought to find ways individuals and communities can help the Māui dolphin, as well as increase awareness within the general public and target schoolchildren with the use of mātauranga Māori. With the help of DOC staff and people from Raglan, we created a children's book that highlights the importance of the Māui dolphin and how public awareness and action can aid in this species' revival. We also created an educational video that incorporates the views of the Raglan community on the Māui dolphin. The team hopes that their work will promote action to protect and save the critically endangered Māui dolphin.

Authorship

The following report was written and edited by all members of the team. The following is a list of the specific team members that took the lead role in drafting each respective chapter. The entire team then edited each chapter in order to ensure high quality work throughout various revisions.

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1 Introduction

According to the International Union for Conservation of Nature (IUCN), of approximately 76,000 total assessed species, 17,500, or about one quarter, are considered threatened (The IUCN Red List of Threatened Species, 2014). It is estimated that if the current rates of extinction continue, 30-50% of all living species will be extinct within the next 50 years (Thomas et al., 2004). Human interactions with the natural environment result in deforestation and pollution, which are the primary causes of species decline (Welch, 2011). If action is not taken to protect these species, the Earth could lose a large portion of its rich biodiversity.

A native species to New Zealand, the Māui dolphin, is on the brink of extinction with only about 55 individuals left (Baker et al., 2013). According to the New Zealand Department of Conservation (DOC), the most critical threat to the Māui dolphin is fishing, which is expected to contribute to 95.5% of the mortalities by the year 2017 (Currey, Boren, Sharp, & Peterson, 2012). The species can tolerate one human induced death every 10 to 23 years, but as of the year 2012, approximately 5.27 dolphins are expected to die each year due to all the current threats that it faces (Currey et al., 2012). There are many threats to the Māui dolphin population, both human-induced and natural threats, such as fishing, pollution, oil and mineral exploration and disease (Currey et al., 2012). The threats to Māui dolphin survival must be addressed in order to save this species from extinction.

Public awareness is essential to inform the public of the plight of the Māui dolphin so that they take this information and translate it into action. DOC needs to create a more accurate Māui dolphin habitat range, which effects how species management options, such as the Threat Management Plan, are written to protect where the Māui dolphin lives (Department of Conservation *Te Papa Atawhai*, n.d.-b). The public can help with this initiative by reporting accurate sightings of the Māui dolphin. However, for more accurate sightings to be sent into DOC, the public must be more aware of the differences between a Māui dolphin and other dolphins, and why it is important to send in these sightings (Department of Conservation *Te Papa Atawhai*, n.d.-b). If DOC receives and validates sightings in a new area, they can protect that region by instituting fishing bans. If the Māui

dolphin is to stand a chance of survival, the public's knowledge about the species must be greatly augmented and more sightings must be reported in order for DOC to have the most accurate information.

Although there is awareness material available, DOC has encountered problems in raising public awareness of the Māui dolphin due to the lack of community partnerships and limited funding. There are also numerous social complexities and concerns regarding Māui dolphin conservation because multiple stakeholders have contradicting interests. Some stakeholders regard economic developments, such as the fishing and mining industries, as hindering Māui dolphin conservation efforts, while others argue that the values of these economic developments outweigh any potential risks to the Māui dolphin.

DOC also has a 20-year education master plan to involve more children in conservation within New Zealand (Department of Conservation *Te Papa Atawhai*, n.d.). Involving children in conservation is seen as an essential component in Māui dolphin conservation and to species conservation in general. Children will be in charge of the future, so instilling a love for conservation will ensure continued action in the years to come. Children can also create a ripple effect in society, from children to parents, and parents to communities about the importance of taking action to conserve the nation's endemic species. This ripple effect within all of society can help to unite the public to take action to protect the Māui dolphin and counteract the economic interests of various industries.

Besides children, the indigenous Māori population in New Zealand is another key group to target in terms of raising awareness. Under the Conservation Act of 1987, DOC is required to collaborate with Māori in conservation initiatives (Taiepa et al., 1997). Māori learn through an indigenous learning system, called mātauranga Māori, in which individuals learn by making intricate observations of the environment (Barriball, 2014). Mātauranga Māori is a very complex, culturally embedded and regionally specific learning system that connects Māori deeply with their environment (Barriball, 2014). Throughout the years, incorporating the concepts of mātauranga Māori in conservation efforts have led to great environmental improvements and scientists have begun to realize the importance of including Māori views about the environment (Taiepa et al., 1997). However, due to the complexity of this learning system, Pākehā (non-Māori) and many organizations, including

DOC, have struggled to fully understand mātauranga Māori and use mātauranga Māori and Western science together in its conservation initiatives, such as protecting the Māui dolphin (Wehi, Whaanga, & Roa, 2009).

Our project aimed to find ways individuals and communities can help the Māui dolphin, as well as increase awareness within the general public and target schoolchildren with the use of mātauranga Māori. We interviewed activists and fishermen mainly from Raglan, a small coastal community located at the center of the Māui dolphin range, in order to understand their views about what could be done to protect the Māui dolphin. We also conducted interviews with teachers to determine what type of conservation education material related to the Māui dolphin would be appropriate and engaging for the students. At this school, the team also interviewed teachers of Māori descent and observed a classroom within the total Māori immersion section of the school to gain insight into how mātauranga Māori is used to teach children about conservation in the classroom.

With the help of DOC, the team created a children's book that highlights key facts about the Māui dolphin to teach children about this critically endangered species while incorporating concepts of mātauranga Māori. We also created an educational video that educates the public about the importance of reporting sightings and incorporates the views of the Raglan community on the Māui dolphin. By creating this awareness material and recommending actions for DOC based on our interviews, the team aimed to further raise awareness that will promote action to protect and save the critically endangered Māui dolphin.

2 Background

2.1 Introduction

The goal of this section is to examine the different issues surrounding conservation of the Māui dolphin in New Zealand. In order to understand how to implement a successful awareness campaign, key facts surrounding the target audiences and what previously has been done must be reviewed. It is also of vital importance to examine the current state of the Māui dolphin, and the various stakeholders involved.

To begin, the importance of the public's awareness and involvement in the conservation of endangered species is examined. This analysis then leads into a more specific review on the current literature on the Māui dolphin, a critically endangered species, and the threats it is currently facing in order to gain scientific background. The stakeholders of Māui dolphin conservation are also evaluated because their views and influences will ultimately affect the success and scale of the project. Next, the current methods for conservation education in school children, a key target group, are evaluated. This will serve to explain the current methods being used and their effectiveness can be analyzed. Lastly, Māori culture, education, and science are explored as Māori are another key target group to the conservation of the Māui dolphin.

2.2 Public Involvement in Conservation

The world is currently at risk of losing many species at a rate that has never been seen before. According to the IUCN, the International Union for Conservation, of the approximately 76,000 total assessed species in the world, about 17,500 are threatened (The IUCN Red List of Threatened Species, 2014). New Zealand, which is thought to be home to at least 80,000 endemic species, is particularly at risk of decreasing its rich biodiversity (Department of Conservation *Te Papa Atawhai*, n.d.-a). The country has about 800 threatened species, 200 threatened subspecies and could have many more yet to be discovered (Department of Conservation *Te Papa Atawhai*, n.d.-a). As a result, public involvement is necessary to mitigate the risk of more species becoming extinct.

Most scientists agree that action must be taken to prevent the extinction of these species, but the approach has been debated. The traditional way scientists have attempted to make a difference is through the trickle down method (Brewer, 2001). In this method, scientists conduct research and publish papers in academic journals with the hope that the information will “trickle down” to the public through textbooks and academic institutions (Brewer, 2001). Some scientists argue, however, that this passive method is not effective in promoting action on conservation issues. They argue that it takes too long for this knowledge to reach the public through sources such as textbooks and the media, and by the time the knowledge reaches them it will be too late to implement change (Brewer, 2001). Most of the public is not actively contributing to a sustainable future due to a lack of environmental knowledge (Bickford, Posa, Qie, Campos-Arceiz, & Kudavidanage, 2012). This lack of knowledge indicates that the traditional methods have not been effective at promoting change. In a survey done in 2009 of people in the academic community, most respondents indicated that local initiatives involving the public, not scientific papers, are the most effective ways to promote action (Shanley & López, 2009). Scientists therefore must generate efforts to educate the public about conservation issues in their community.

Many conservationists argue that it is vital for scientists to focus on directly educating the public to promote positive action. In the academic community, the emphasis on publishing scientific papers prevents scientists from having the time or resources to work with the community (Shanley & López, 2009). This focus on publishing in journals must change in order to provoke change for the environment. Scientists must learn to teach and disseminate the results from their study in a way the public can understand and use (Brewer, 2001). Many people receive biased accounts of science from the media, therefore it is important for scientists to publish unbiased work in these locations (Bickford et al., 2012). The focus has to be not only on teaching the facts, but on teaching critical thinking and how to translate skills into action (Bickford et al., 2012). The best way to invoke effective change for the environment is to ensure that people are educated about conservation issues.

Multidirectional approaches involving local people and stakeholders should be considered to increase public involvement when conducting scientific research on

conservation issues. Many people who are surveyed for studies report being irritated with constant surveys with no feedback on the results (Shanley & López, 2009). This frustration is indicative of scientists' current unidirectional approach where they collect data and then share their conclusions with the public. Effective programs should take a multi-directional approach to gathering and distributing information (Brewer, 2002). In these types of approaches, citizens are engaged as partners in the studies, allowing both scientists and the public to learn from each other.

Public involvement is essential with any species on the brink of extinction. According to Bickford et al. (2012), "it is key to engage communities that live adjacent to habitats of endangered species or protected areas" (p. 75). Environmental problems overall are embedded within society and therefore should involve the public in order to successfully resolve the issues (Eames, Cowie, & Bolstad, 2008). Community involvement allows for increased awareness and passion about an issue within the community, and the creation of local conservation organizations.

Community involvement in conservation is also important because it is much easier to achieve long term conservation goals when collaborating with local groups than without (Berkes, 2004). Nature is very complex and ecosystems involve many levels of hierarchy that are partially dependent on one another. Therefore, centralized management of conservation without community involvement is not sufficient because it does not fit with this complex, hierarchical system of the environment (Berkes, 2004). Due to the complexity of conservation issues, a cross-scale approach must be taken to address these conservation problems at diverse levels and match nature's hierarchical system (Berkes, 2004). The natural environment has many levels and therefore conservation management must have just as many elements as the natural environment. This cross-scale approach involves horizontal linkages of local non-governmental organizations, stakeholder bodies and government branches, such as the New Zealand Department of Conservation (DOC), where they share their experiences and learn from one another (Berkes, 2004). Overall, cross-scale approaches should be planned from the bottom up and not top-down because it makes more sense to start at the origins of the problem (Berkes, 2004). Local community involvement is essential and at the grass roots of all conservation efforts, especially when

working to save local, endemic species at the brink of extinction (Berkes, 2004). This bottom-up approach or subsidiarity principle states that “the goal should be as much local solution as possible and only so much government regulation as necessary” (Berkes, 2004, p. 7).

For these reasons, local community involvement, especially with the indigenous Māori population within New Zealand, is of vital importance to the Department of Conservation. Local Māori tribes have intricate knowledge of their local environment due to their indigenous learning system and are therefore the main grass root organizations that can effectively co-manage conservation initiatives (Taiepa et al., 1997). However, due to DOC’s limited funding and the lack of full understanding of the Māori learning system by Pākehā (non-Māori), DOC and other central government organizations have struggled to effectively incorporate Māori within their conservation efforts (Taiepa et al., 1997). In the years to come, with the right resources, community empowerment and equal collaboration, these local Māori tribes can become more effective co-managers in the conservation efforts to save New Zealand’s endemic species, including the critically endangered Māui Dolphin (Taiepa et al., 1997).

2.3 The Critically Endangered Māui Dolphin

The Māui dolphin (*Cephalorhynchus hectori Māui*) is a small coastal dolphin that is a subspecies of the Hector’s dolphin, both endemic to New Zealand (Currey et al., 2012). The Māui dolphin is one of the smallest dolphins in the world, as they only grow up to 1.7 meters long and weigh up to 50 kilograms. They are grey, white and black with a short snout and a black rounded dorsal fin, as seen in Figure 1 below (WWF Global). The unique rounded dorsal fin makes the Māui dolphin easy to differentiate between any other dolphins except for its sibling, the Hector’s dolphin. As the two dolphins are extremely similar in terms of size and color, the only way to differentiate between them is through DNA testing (Baker et al., 2013). Māui dolphins, however, do have a slightly larger skull than Hector’s dolphins and a rostrum, which is the “snout” of the skull, that is larger and wider (Department of Conservation *Te Papa Atawhai*, n.d.-b).

Māui dolphins typically live off of the west coast of the North Island, while Hector's dolphins live off the coast of the South Island, making it easy for an observer to differentiate between them by geographical location, but genetic testing is still needed to confirm their identity (WWF Global). Prior to 2002, Māui dolphins were known as North Island Hector's dolphins until genetic testing confirmed Māui dolphins were a subspecies (Department of Conservation *Te Papa Atawhai*, n.d.-b). The theory behind the existence of this subspecies is that Māui dolphins were isolated from Hector's dolphins when the South Island separated from the North Island about fifteen to sixteen thousand years ago (Department of Conservation *Te Papa Atawhai*, n.d.-b). Because of this geographical separation between the two species, the Māui dolphin obtained its name from the Māori name of the North Island: Te Ika a Māui (WWF Global).



Figure 1: Photograph of a Māui dolphin mother and her calf, note the rounded dorsal fin unique to the Hector's and Māui dolphin (Department of Conservation *Te Papa Atawhai*, n.d.-b).

Due to their very low population, the Māui dolphin has been listed as critically endangered by the IUCN and also has been listed as nationally critical by the New Zealand Threat Classification System (Baker et al., 2013). Based on a 2013 study, it is estimated that there are only 55 living Māui dolphins over the age of one year remaining (Baker et al., 2013). A major factor putting the Māui dolphin at risk is their low reproductive and population growth rates. The female dolphin is not sexually mature until seven to nine years of age and only gives birth to a calf every two to four years (Currey et al., 2012). This

reproduction rate, combined with a maximum-recorded age of 22 years, indicates a maximum of 1.8% growth rate in population per year if they are allowed to live to maturity without any mortality threats such as fishing or disease. This low rate of reproduction proves very problematic for this endangered species, as it makes them less resilient to current human threats or disease. With the current rate of human induced mortality, the population is expected to decline at 7.6% per year (Currey et al., 2012). It is predicted that if the current population rates of growth and decline are held constant, the Māui dolphin will be extinct by the year 2031 (NABU International: Foundation for Nature, 2013).

When a population of any species becomes depleted, such as the case with the Māui dolphin, genetic bottlenecks may also increase the susceptibility of extinction due to decreases in genetic diversity (WWF Global). Māui dolphin genetic diversity has declined significantly over the last 100 years, reducing from three lineages to one (WWF Global). Genetic bottlenecks can be detrimental to a species' survival because it may cause consequences to long-term viability and overall species strength (Jamieson, Grueber, Waters, & Gleeson, 2008). Additionally, frequent inbreeding can lead to the immediate loss of fitness, which means decreased survival or reproduction success (Jamieson et al., 2008). Genetic diversity is needed in a species to allow the species to adapt to the changing environment or new diseases that may come along in the future. There is hope of reducing this threat since scientists have confirmed that two Hector's dolphins have been found living within the range of the Māui dolphin (Hamner et al., 2012). This brings hope that the Hector's dolphin may breed with the Māui dolphin to increase their genetic diversity ("Cross-breeding raises hopes for rare dolphin," 2010). However, there is no scientific evidence that Hector's and Māui dolphins have interbred ("Cross-breeding raises hopes for rare dolphin," 2010).

The Māui dolphin faces many threats that contribute to their decline, both human-induced and non-human-induced. In 2012, a risk assessment of threats to the Māui dolphin was conducted by scientists from the Royal Society of New Zealand, the Ministry for Primary Industries (MPI) and the New Zealand Department of Conservation (DOC) to identify, analyze and evaluate all threats to the Māui dolphin (Currey et al., 2012). It was found that there is a 95.7% likelihood that the Māui dolphin population will continue to

decline if all threats remain at current levels (Currey et al., 2012). The current human-induced threats to the Māui dolphin include human-related threats such as fishing activities, tourism, pollution, petroleum exploration, mineral exploration, mining and coastal developments (Currey et al., 2012). Besides the human-induced threats, there are also non-human induced threats such as predators and disease (Currey et al., 2012). These threats can either have direct or indirect impacts on the Māui dolphin population.

The specific threats of mining and exploration of petroleum and minerals involve the use of seabed mining and seismic surveys. Seabed mining involves mineral extraction from the sea floor. This is done by dredging sand, or lifting material from the sea floor in any other fashion (Kiwis Against Seabed Mining, n.d.). Seismic surveying makes use of sonic booms to map the sea floor. The purpose of seismic surveys is to identify geologic features that may indicate the presence of oil or gas (Ministry of Business Innovation and Employment, 2014). Both of these activities have the potential to negatively affect the Māui dolphin's habitat, but there have not been any scientific studies to look at this impact.

Natural predators are a non-human induced threat to the Māui dolphin. Great white sharks and gilled-sharks have been known to predate on Hector's and Māui dolphin since these dolphins have been found inside the stomachs of these sharks. Orcas also may potentially predate on Māui dolphins but there has been no known occurrences of Māui dolphins found inside orca's stomachs (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012).

A specific disease called toxoplasmosis, which is caused by an infectious parasite called *Toxoplasma gondii*, is another potential non-human induced threat to the Māui dolphin (Roe, Howe, Baker, Burrows, & Hunter, 2013). The disease is transmitted by the ingestion of parasite eggs, which can commonly be found in cat feces from cat litter running off into waterways (Roe et al., 2013). Besides fatalities, the disease can also cause behavioral changes, reproductive loss and an increased risk of predation (Roe et al., 2013). From an experiment done on three Māui dolphins' tissue samples and twenty-five Hector's dolphin's tissue samples, seven were diagnosed with fatal toxoplasmosis (5/25 Hector's dolphins and 2/3 Māui dolphins) (Roe et al., 2013). It has not been proven that

toxoplasmosis in the dolphins was transmitted through cat litter. This study overall highlighted the need for further experimentation and research into the transmission of this disease and its effects on the Māui and Hector's dolphin populations (Roe et al., 2013).

Although there are many different threats to the Māui dolphin population, fishing related threats such as commercial, recreational, customary or illegal fishing-related activities pose the greatest risk to the dolphins. It is expected that over the next five years, there will be a median of 5.27 Māui dolphin deaths and that fishing related threats alone will contribute to 95.5% of these mortalities. The remaining 4.5% of mortalities are expected to be caused by non-fishing related threats such as disease or natural predators (Currey et al., 2012). Determining the exact location and range of the Māui dolphin is imperative to determine the range of the Māui dolphin so that their habitat may be protected by government fishing restrictions (Currey et al., 2012). Below in Figure 2 is the agreed upon distribution of the Māui dolphin along the west coast of the North Island.

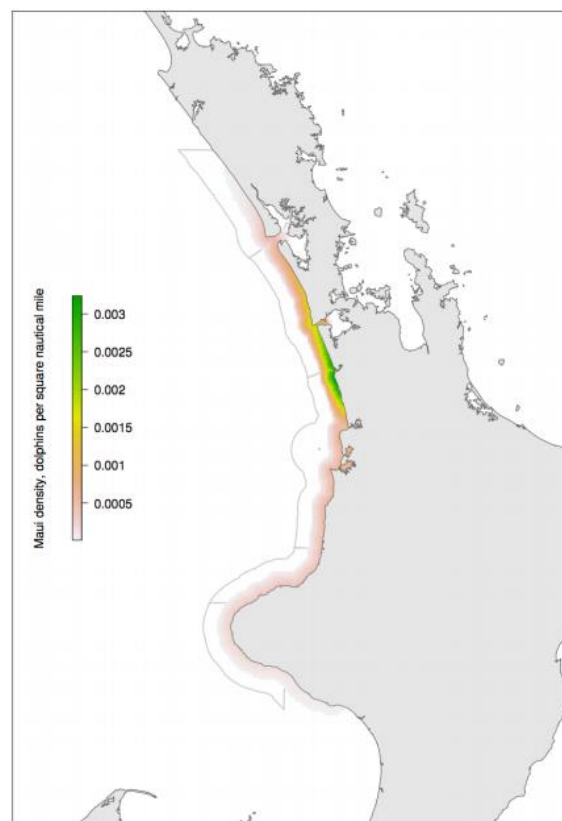


Figure 2 Māui's dolphin density per square nautical mile as agreed upon by an expert panel. The color scale represents dolphin density where red represents the least dense and green represents the densest (Currey et al., 2012)

As fishing related activities are the major threat to the Māui dolphin population, set net bans were enacted in October 2003 in order to protect the Māui dolphin (J. Stewart & Callaghan, 2013). Māui dolphins are known to swim close to shore, often less than 20 meters deep and are therefore more vulnerable to set nets. The set net bans protected the Māui dolphin habitat from Maunganui Bluff to Pariokariwa Point (J. Stewart & Callaghan, 2013).

Since the original bans were enacted, additional restrictions have been applied in 2013. The new restrictions expanded the set net fishing ban by 350 square kilometers from Pariokariwa Point and Waiwhakaiho River ("New Zealand's Endangered Dolphins Slide Toward Extinction," 2013). These additional bans were a direct result of a Māui or Hector's dolphin mortality which occurred in Cape Egmont Taranaki, a region that was previously unprotected from set-net fishing, in January 2012 (Department of Conservation *Te Papa Atawhai*, n.d.-b). These new set net bans, which include Cape Egmont Taranaki, also cover regions in which there have been five reported sightings of the Māui dolphin ("Additional protection proposed for Māui's dolphin," 2013). The new restrictions aim to further protect the habitat of the Māui dolphin by avoiding additional human-induced mortalities (Currey et al., 2012). These restrictions include commercial trawl restrictions, commercial and recreational drift net restrictions, commercial set net restrictions, a marine reserve and a marine mammal sanctuary (Currey et al., 2012). When DOC proposes these additional bans, they allow the public and any interested organization to submit comments on the plan.

The West Coast North Island Marine Mammal Sanctuary was enacted by DOC in 2008 as a part of the Hector's and Māui dolphin Threat Management Plan. In 2013, the sanctuary was extended to include the Māui dolphin range in the Taranaki region. The marine mammal sanctuary is located from Maunganui Bluff to Oakura Beach, out to 12 nautical miles offshore. This sanctuary is not just for the Māui dolphins, as other marine mammals such as fur seals, common dolphins and orcas can also be found within this region. The sanctuary includes restrictions on seabed mining and acoustic seismic survey work, as well as all the set net and trawl restrictions that were enacted before the sanctuary was formed. Specifically, all seismic surveying must follow the Code of Conduct

for Minimizing Acoustic Disturbance to Marine Mammal from Seismic Survey Operations. Seabed mineral mining is prohibited between two and four nautical miles offshore and there is a voluntary code of conduct for inshore boat racing (Department of Conservation *Te Papa Atawhai*, n.d.-b). This marine mammal sanctuary was established to further protect the Māui dolphin from any human-induced threats to its population.

The fishing restrictions aim to stop illegal set net fishing by allowing commercial ring netting, a lower risk activity, in areas where set net activity is prohibited (Department of Conservation *Te Papa Atawhai*, n.d.-b). A complete map of the government regulations to protect the Māui dolphin as of January 2015 can be seen below in Figure 3. The yellow region of the map of Figure 3 is the only region that requires an observer on board in order to use set nets, while the rest of the regions are self-regulated. Fishermen are required to self-report any Māui dolphins caught accidentally by set nets, which has led to controversy (Department of Conservation *Te Papa Atawhai*, n.d.-b). DOC advises that individuals contact the Ministry of Primary Industries by calling 0800 4 POACHER if they witness any illegal set netting within the set net banned areas (Department of Conservation *Te Papa Atawhai*, n.d.-b).

Overall, the biggest controversy with the set net bans is pinpointing where the Māui dolphins are present to justify the restrictions. Activists argue fishing should be banned in any area the dolphins could potentially be present, while the fishermen argue to limit bans to areas the dolphins have definitely been seen. Some people argue that the lack of sightings in an area indicates that the Māui dolphins are not present in that specific area. The local citizens are essential in reporting sightings of the Māui dolphin so that the exact range of the Māui dolphin can be better determined. The government does not want to ban fishing in regions where the Māui dolphins are not present but there is large scientific uncertainty of the exact range of the Māui dolphin. Due to this uncertainty, activists argue that more precautionary fishing restrictions need to be enacted to help protect the Māui dolphin (Department of Conservation *Te Papa Atawhai*, n.d.-b).

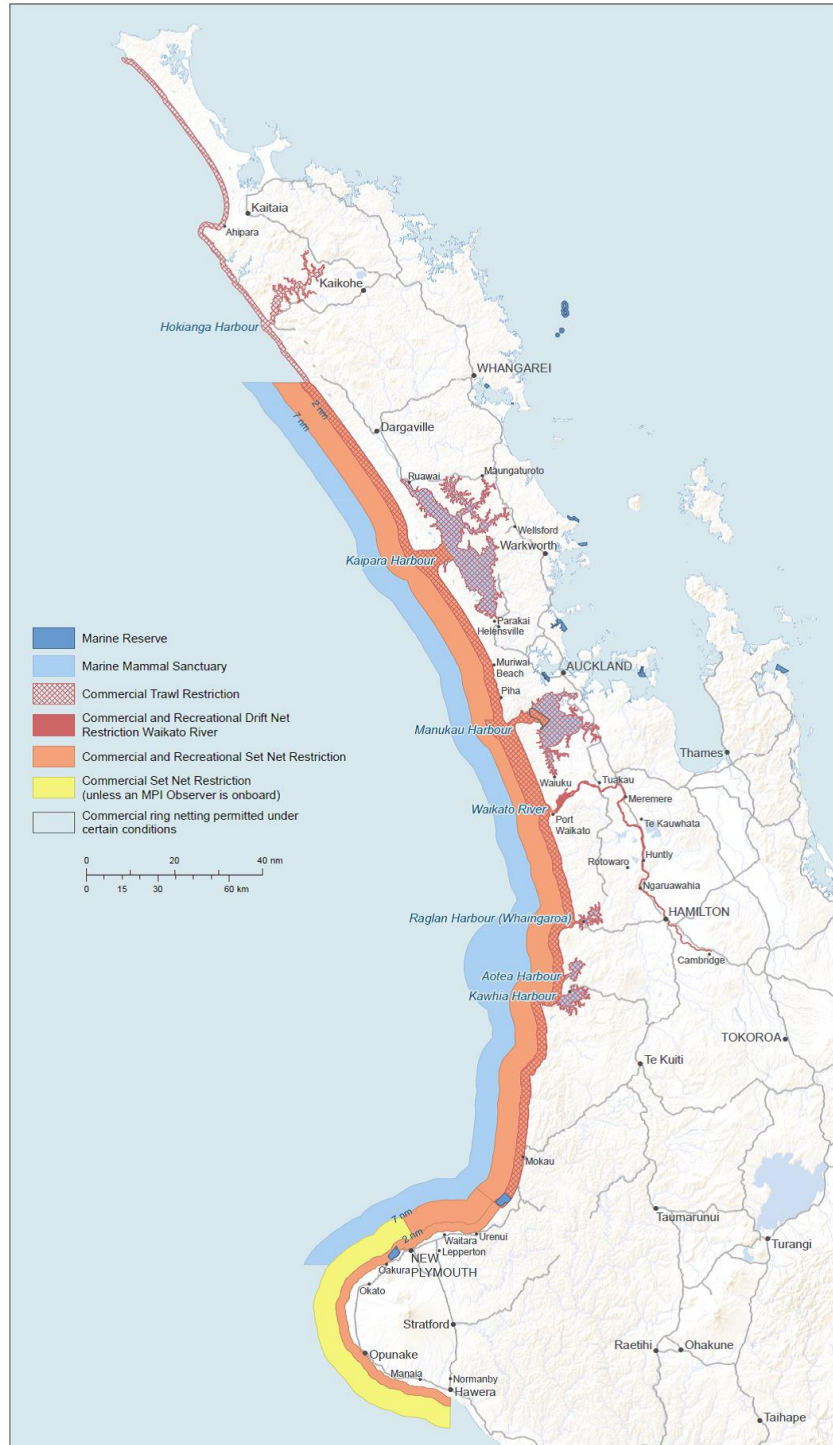


Figure 3: A complete map of the government regulations to protect the Māui dolphin population on the west coast of the North Island as of January 2015. The commercial trawl restrictions, commercial and recreational drift net restrictions and commercial set net restrictions are outlined in red, orange or yellow according to the key provided. The marine reserve and marine mammal sanctuary are outlined in shades of blue according to the key provided (Department of Conservation *Te Papa Atawhai*, 2015).

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2.4 Different Perspectives of Māui Dolphin Conservation

The survival of the Māui dolphins has involved many individuals and organizations, which have diverse perspectives and roles in the conservation of the Māui dolphin. There are many social complexities and concerns revolving Māui dolphin conservation, which results in tension. These tensions mainly stem from the want to expand economic development, such as fishing and seabed exploration, which counteract the restrictions needed to protect the Māui dolphin habitat. DOC drafts policies to protect the Māui dolphin habitat and the Ministers of Conservation and of Primary Industries have the power to enact them (Department of Conservation *Te Papa Atawhai*, n.d.-b). There are different political pressures on the Ministers, as they have a responsibility to balance conservation efforts with the need to grow New Zealand's economy. DOC collects scientific data and then uses this data to create one of their species management policies, a Threat Management Plan, for various endangered species, such as the Māui dolphin, to protect their habitats. When a Threat Management Plan is proposed, the public can submit comments and feedback on the plan (Department of Conservation *Te Papa Atawhai*, n.d.-b).

The various organizations that can contribute to the conservation effort of the Māui dolphin are broadly categorized in six categories by DOC. These categories include the New Zealand government, non-government organizations (NGOs), Māui dolphin researchers,

industry, tangata whenua, and community groups & the general public (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012). Figure 4 shows the connections of the stakeholders with respect to the conservation of the Māui dolphin.

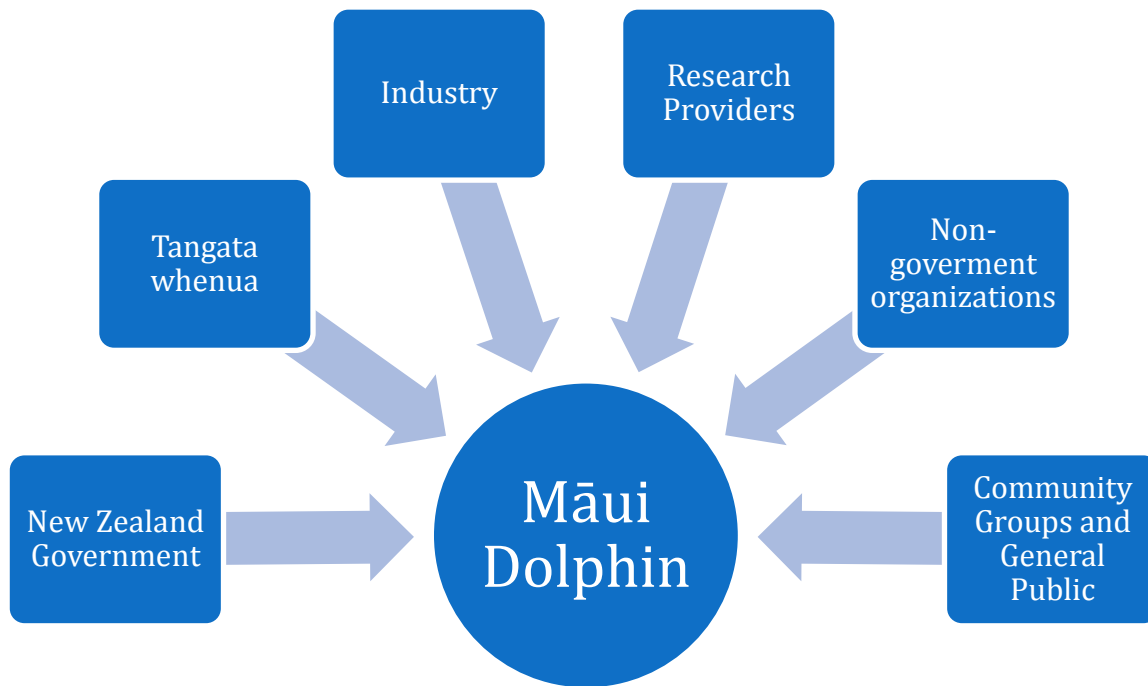


Figure 4: Stakeholders of Māui Dolphin Conservation

The New Zealand government includes any local governments as well as DOC and the Ministry of Primary Industries (MPI). DOC works to save this species by collaborating with many organizations and individuals to protect the Māui dolphin and get them involved in conservation. Additionally, DOC is the central government agency responsible for the conservation of New Zealand's natural and historic heritage, and it has a responsibility to advise Ministers and government officials on conservation matters and further implement governmental policy (Department of Conservation *Te Papa Atawhai*, n.d.-b).

More specifically, DOC is responsible for implementing Threat Management Plans for all of New Zealand's threatened species (Department of Conservation *Te Papa Atawhai*, n.d.-b). They use objective criteria to categorize species and then examine the threats to that species in order to take actions to protect them (Department of Conservation *Te Papa Atawhai*, n.d.-b). DOC currently administers the Marine Mammals Protection Act, which has authorized them to establish six marine mammal sanctuaries (Department of Conservation *Te Papa Atawhai*, n.d.-b). DOC also organizes volunteer teams to rescue stranded marine mammals after they receive reported sightings of stranded marine mammals (Department of Conservation *Te Papa Atawhai*, n.d.-b). They are an important group to collaborate with when working on conservation issues in New Zealand, as they have the power and influence to make meaningful change.

MPI (Ministry for Primary Industries) is another government organization that works to grow and protect all of New Zealand, which includes the Māui dolphin. They maximize export opportunities for the primary industries, work to improve sector productivity, increase sustainable resource use and protect New Zealand from biological risk. The primary industries include farming, fishing, food, animal welfare, biosecurity and forestry (Ministry for Primary Industries *Manatu Ahu Matua*, n.d.). MPI is also responsible for supervising the commercial fishing industry to help eliminate the catch of marine mammals. Overall, the New Zealand government is involved with the protection of the Māui dolphin as they have the responsibility to record sightings and strandings of dolphins, consider available tools to control the human-induced threats to the population, provide input into research planning process, and seek opportunities for collaboration in order to increase capacity for gathering information on Māui dolphin and sharing ideas on how to protect them (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012).

There are also numerous NGOs who are involved with the protection of the Māui dolphin. These NGOs can contribute to the conservation of the Māui dolphin by reviewing the research priorities as defined by DOC, commenting on their suitability and undertaking projects where possible. They can provide input into the research planning process and help develop better tools for reporting sightings or raising public awareness (Ministry for

Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012). These NGOs range from small community groups to large international organizations, such as the World Wildlife Fund for Nature (WWF). All twenty six NGO's involved in the conservation of the Māui dolphin can be found in Appendix A.

These different NGOs have varying opinions on what should be done to protect the Māui dolphin but all are in agreement that more action needs to be taken to help save the species. Some NGOs believe that there is a rush to blame the fishermen and thus extend fishing restrictions, but these individuals overlook the other threats to the Māui dolphin population. These conservationists urge the nation to understand and act on the whole Māui dolphin environment including predation, pollution and disease (Bodeker, 2012). Other conservationists argue that the current fishing bans are not enough to save the Māui dolphin (Bird & Palka, 2013). They urge for more policing and monitoring in order to prevent illegal fishing activities (Bodeker, 2012). These conservationists believe that fishing related deaths of the Māui dolphin must be reduced to zero as there are only 55 dolphins left (Bird & Palka, 2013). These conservationists believe that delaying the enactment of larger and stricter set net bans will lead to the extinction of the Māui dolphin (Bodeker, 2012).

WWF, a large international NGO, supports the current Threat Management Plan but would like further protection measure to help conserve the species (Palka, 2013). WWF also argues that the recent extension of set net protections for the Māui dolphin does not cover the entire range of the Māui dolphin population. They believe that the additional bans were an inadequate response to the plight of the Māui dolphin and that the bans should be extended further (Bird & Palka, 2013). WWF specifically argues that the Māui dolphins are in a critically endangered state and that their entire habitat, even if some areas are disputed and not yet scientifically proven by DOC, should be protected by set net bans (Palka, 2013).

An example of a small community NGO that is highly involved in the conservation of the Māui dolphin is the Whāingaroa Environment Centre (WEC). WEC is an information, resource and action center that actively supports environmental sustainability. This

specific NGO is involved with the conservation of the Māui dolphin as it is based in Raglan, a key town within the range of the Māui dolphin. WEC has also hosts Māui Dolphin Day which serves as a community celebration to highlight the importance of the marine environment (Whāingaroa Environment Centre, 2015).

Kiwi's Against Seabed Mining (KASM) is another important NGO that plays a major role in protecting this critically endangered species. This organization was established after companies began gaining prospecting permits to look into mining the seabed along the west coast to extract the plentiful iron sand reserves. KASM openly opposes all proposals of seabed mining and educates the public about the consequences of seabed mining on New Zealand's coastal ecosystems. As of 2015, KASM has prevented all seabed mining from breaking ground along the west coast, ultimately helping to save many coastal species, such as the Māui dolphin (Kiwis Against Seabed Mining, n.d.).

Māui dolphin researchers are another group identified by DOC that can positively contribute to the conservation of the Māui dolphin by reviewing the named research priorities as defined by DOC and undertaking projects where possible. They can also provide input into the research planning process and seek opportunities to collaborate in order to increase the capacity of their research (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012).

Another organization involved with the conservation of the Māui dolphin is the fishing industry. When fishermen set out their trawl nets or set nets, the dolphins can get entangled in them and subsequently drown (J. Stewart & Callagher, 2013). The resulting set net bans have affected where fishermen are allowed to fish and they have had to adapt to these restrictions. Although a 2013 study reported that the industry was not affected as a whole by the 2003 set net bans, individual fishermen and their personal incomes were not examined by the study (J. Stewart & Callagher, 2013). It should also be noted that these studies looked at New Zealand as a whole, including regions outside of the Māui dolphin range, so certain regions may have been affected more than others. Compensation was not provided to the fishermen who could no longer fish to make their living (Hamilton & Brown, 2008). The controversy arises when there are disputes about whether the set net

bans are an accurate representation of the actual Māui dolphin range. Some argue that bans exist in areas where there have never been Māui dolphin sightings. Accurate sightings are needed in order to determine the Māui dolphin's range and address these issues. The fishing industry can contribute to the conservation of the Māui dolphin by providing input into the research planning process, assist in gathering information on the Māui dolphin, such as reporting sightings, and seek opportunities to increase the use of their collected data (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012).

Tangata whenua, meaning people of the land, refers to the indigenous people of New Zealand, or Māori. Māori have rights under the treaty of Waitangi, and can take legal action against the government if they feel the necessary steps are not being taken to protect their lands and endemic species (New Zealand Ministry of Justice, n.d.). Under the Conservation Act of 1987, DOC is required to collaborate with Māori on conservation efforts (Taiepa et al., 1997). Māori are broadly involved with the conservation of Māui dolphins because they can provide input into the research planning process, particularly on research proposals that may take place in their rohe, or tribal group boundaries (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012). They also assist in their own management of customary fisheries and interactions with Māui dolphins. The individual tribes can also improve their capacity to gather information and raise awareness about the cultural importance of the Māui dolphin (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012).

Community groups and the general public play an essential role in the conservation of the Māui dolphin. DOC realizes that continuously increasing public awareness about the Māui dolphin is a necessary step to get the public more involved (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012). Even though the Māui dolphin is a critically endangered endemic species, it was found that current public awareness is still very limited (Lowe et al., 2014). Surveys conducted in 2014 show that only 5% of locals could properly identify and report a Māui dolphin (Lowe et al., 2014). Additionally, these same surveys found that only 38% of people have reported

learning about the Māui dolphin in a school setting (Lowe et al., 2014). It should be noted, however, that these surveys were mainly conducted in areas outside the Māui dolphin's range so they are not representative of New Zealand as a whole. Regardless, a continuation of large awareness efforts are needed if Māui dolphin conservation is to be a successful, nationwide effort.

2.5 Reporting Sightings of the Māui Dolphin

One way that the public can get involved in the conservation of the Māui dolphin is through reporting sightings. Accurate reported sightings help to determine the range of the Māui dolphin as well as their migration patterns, population density and other habitat characteristics (Lowe et al., 2014). Reporting sightings are also essential to the survival of the Māui dolphins because it allows scientists to track the dolphins and collect genetic samples (Lowe et al., 2014). Reporting sightings is an easy and simple way for the public to be involved in the conservation of the Māui dolphins. It is important to report any sightings because the New Zealand government is hesitant to enact additional fishing restrictions unless they have concrete evidence of the full range of the Māui dolphin (Currey et al., 2012).

There are several methods to report sightings of the Māui dolphin to the Department of Conservation. The first is by filling out a paper copy of the "Marine Mammal Sighting Form" that can be found on DOC's website, which can then be mailed to the threat management center located in Wellington (Department of Conservation *Te Papa Atawhai*, n.d.-b). This form has pictures of different marine species and asks questions that the witness must fill out to help verify the validity of the sighting. The form asks questions about personal information, the sighting location including GPS coordinates and any nearby landmarks, observations about the environment such as sea conditions, and any identifiable characteristics of the dolphin (Department of Conservation *Te Papa Atawhai*, n.d.-b). This method is not very efficient due to the fact that there is a large time lag between reporting the sighting and DOC processing the sighting form since it must be mailed to them (Department of Conservation *Te Papa Atawhai*, n.d.-b).

The second method to report sightings is filling out the online “Marine Mammal Sighting Form”, which can be found on DOC’s website. The online version of the “Marine Mammal Sighting Form” is identical to the paper form (Department of Conservation *Te Papa Atawhai*, n.d.-b). DOC has updated this online form to be more mobile-friendly, which has helped decrease the time it takes to fill out the form.

The last method to report sightings is by calling the DOC HOTline directly at 0800 DOC HOT. The same questions that are in the “Marine Mammal Sighting Form” are asked over the phone (Department of Conservation *Te Papa Atawhai*, n.d.-b). This method, overall, is faster and more efficient and is the preferred method to use in order to accurately report sightings in a timely manner. The last two methods are limited to the use of cellular reception but most major cellular carriers have reception in the range of the Māui dolphin and therefore is not a major limiting factor (Lowe et al., 2014). Overall, time is of the essence when it comes to accurate reported sightings. Time lags between reporting sightings and processing the sightings can cause inaccuracies and lead to DOC not being able to locate the dolphin that was reported. Therefore, sightings must be reported immediately.

Once a sighting is reported, the data must be processed to determine its validity. No further action is taken until the reported sighting is verified since DOC does not want to use its limited resources when it is not necessary. Sighting reports are ranked for their validity on a scale from 1 to 5, 1 being most valid and 5 being least valid (Department of Conservation *Te Papa Atawhai*, n.d.-b). The reported sighting validation process involves analyzing the witness’s knowledge about the Māui dolphin, the accuracy of the geographical location of the sighting as well as whether a picture of the species was taken during the sighting (Department of Conservation *Te Papa Atawhai*, n.d.-b). If the reported sighting is validated, DOC will send out a team to the location of the sighting and will try to call the witness over the phone and conduct an informal phone interview to gather even more information about the sighting (Department of Conservation *Te Papa Atawhai*, n.d.-b). They also ask that the witness remain in the vicinity of the dolphin until a DOC staff arrives in order to help locate the dolphin faster. Once a DOC team locates the dolphin, they will take genetic samples of the species (Department of Conservation *Te Papa Atawhai*, n.d.-b).

The World Wildlife Fund (WWF) also has an outlet to report sightings. They suggest that sightings should be reported by either calling 0800 4 MĀUIS or submitting a sighting form through their website. As of February 10th 2015, WWF also created an mobile application called *Maui's Dolphin* which has key information about the dolphin as well as a way to report sightings (WWF Global). Similar to DOC, WWF urges that once a Māui dolphin is sighted to be aware of the surroundings and take note of where the dolphin was identified, what time, what they looked like, how many were seen and what it was doing at the time of the sighting (WWF Global). If a dead or stranded Māui dolphin is found, WWF encourages that DOC is contacted directly (WWF Global). WWF's sighting process is another option for individuals to report sightings and works with DOC on its efforts to increase awareness of the Māui dolphins.

After reporting a sighting and the sighting is validated, genetic samples need to be collected, as genetic monitoring is essential in order to distinguish between a Hector's and Māui dolphin (Baker et al., 2013). These samples are taken using a biopsy dart that takes a small skin sample, which is minimally invasive (Baker et al., 2013). All sightings and their validation scale are recorded to a database that was created in 1970 and is available to the public. WWF also has their own database of Māui and Hector's dolphin sightings, which they began in 2003. They send their information to DOC so that the databases are cross-referenced and reflect accurate sightings (Department of Conservation *Te Papa Atawhai*, n.d.-b). Figure 5 below shows a map of all reported sightings from 2002-2014 (Department of Conservation *Te Papa Atawhai*, n.d.-b). The map includes Hector's dolphins as well since the difference between the Māui and Hector's dolphins cannot be determined without the results from the genetic testing.

Besides reporting sightings themselves, the public can also encourage others to report sightings and raise awareness about how critical sightings are to the survival of the Māui dolphin. The public can also advocate for safe boating and fishing practices for the dolphins, which abide by current government laws, and support fishermen who do not use set nets or trawling in order to minimize the human-related impacts on the Māui dolphins (NZ Whale and Dolphin Trust, 2011).

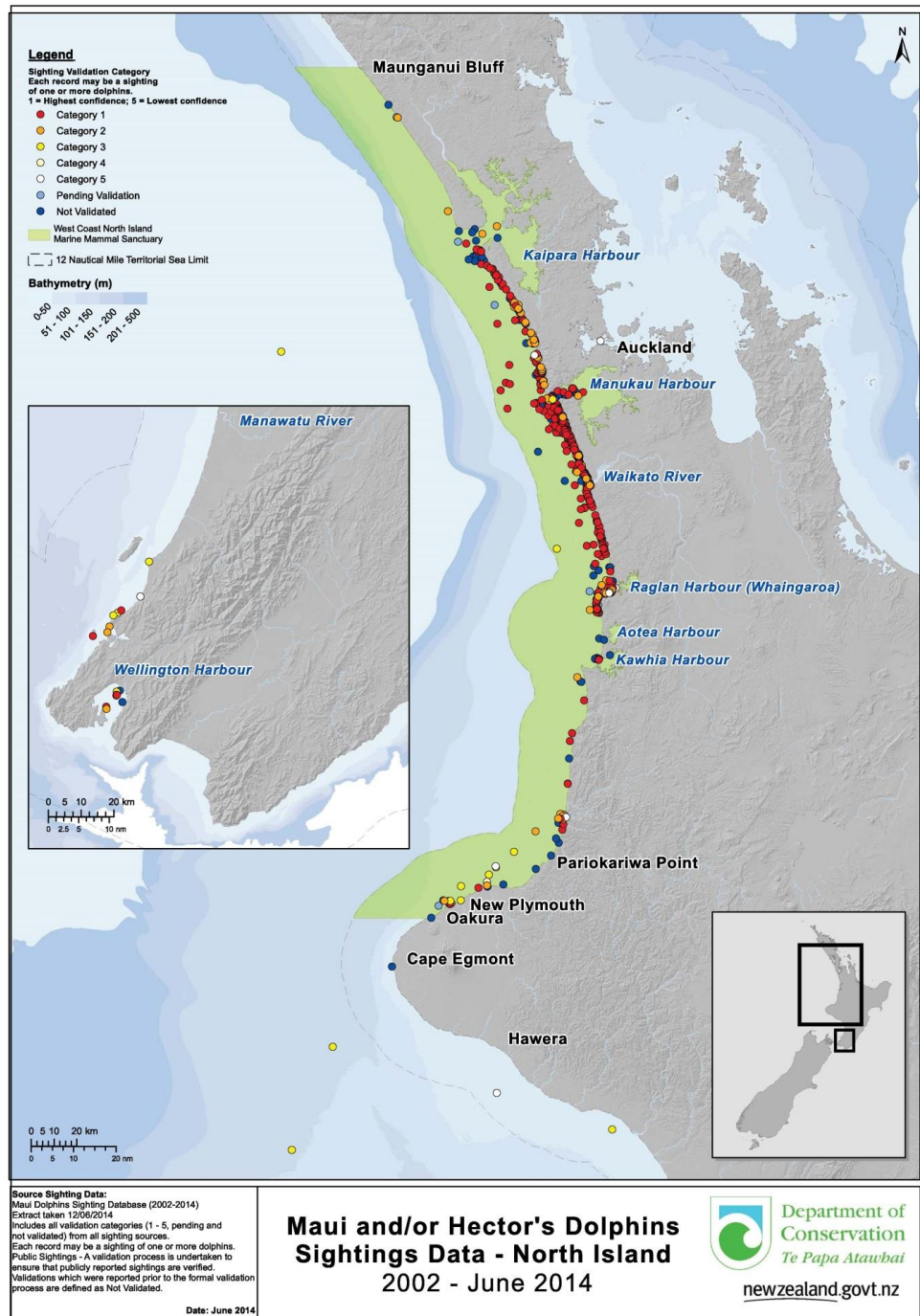


Figure 5: Māui and/or Hector's Dolphin Sightings Data from 2002-2014. The sightings are color coded based off the validation scale of 1-5. (Department of Conservation *Te Papa Atawhai*, n.d.-b)

In 2014, a group of Worcester Polytechnic Institute students worked with DOC to create a slogan and bumper stickers to encourage the public and fishers to report Māui dolphin sightings. The slogan, "Rounded fin? Send it in!" describes the unique shape of the

Māui dolphin dorsal fin and the fact that if sighted, the dolphin should be reported. This slogan is now used on DOC's website as well as on various awareness material to encourage reporting sightings (Department of Conservation *Te Papa Atawhai*, n.d.-b). The bumper sticker is displayed in Figure 6 below.



Figure 6: Slogan and Design Created by Previous WPI Students Working with DOC (Department of Conservation *Te Papa Atawhai*, n.d.-b).

2.6 Conservation Education for Schoolchildren

DOC has identified a goal to educate one million children about conservation by the year 2030 (Department of Conservation *Te Papa Atawhai*, 2011). The purpose of this plan is to increase awareness about conservation with children and set in motion long term conservation plans to implement a more sustainable future. In the short term, DOC hopes that by educating children they will create a ripple effect through society by influencing peers, parents and communities (Department of Conservation *Te Papa Atawhai*, 2011). In the longer term, they hope that the children will grow up to become leaders and decision makers who make choices with conservation minded choices (Department of Conservation *Te Papa Atawhai*, 2011). DOC also hopes that children will teach and influence the next generation, ensuring a continuous cycle of conservation and sustainability (Department of Conservation *Te Papa Atawhai*, 2011). DOC's plan is outlined in Figure 7 below.

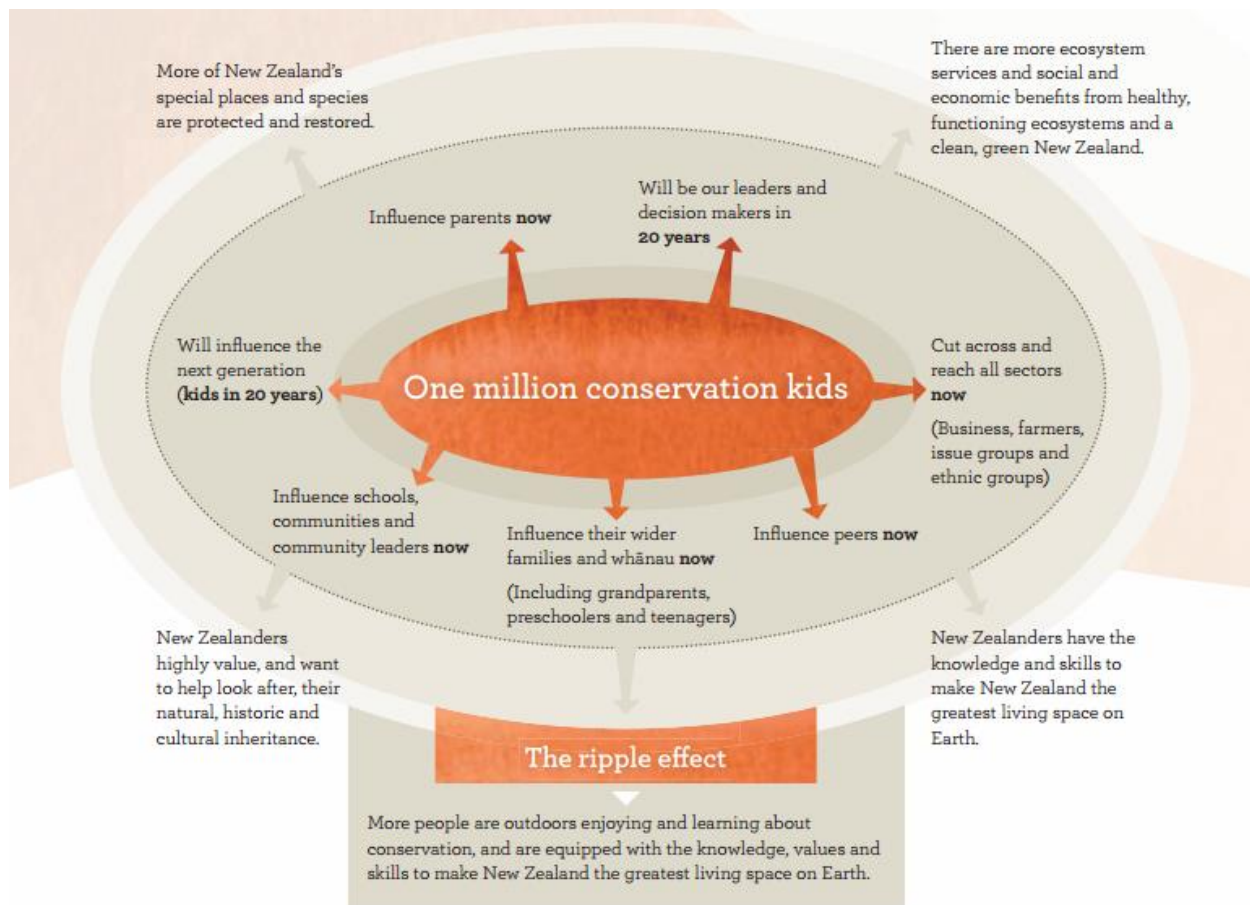


Figure 7 DOC's 20 Year Master Plan to Educate Children (Department of Conservation Te Papa Atawhai, 2011)

While DOC has put forward a 20 year conservation education plan, the methods to implement conservation education however, have been a major debate for many decades. There are three different conservation education approaches: education *about* the environment, education *in* the environment and education *for* the environment. All three education approaches should be incorporated within conservation education programs for school children in order to be most successful. Education *about* the environment has been a historic practice. Many believe that if students are given knowledge about the pressing issues, they will act (Eames et al., 2008). Many conservationists however argue that just promoting education about the environment without incorporating the other two approaches does not promote direct action to help the environment (Taylor, Littledyke, Eames, & Coll, 2009). According to Eames et al., education *in* the environment is an approach many teachers naturally take when they implement conservation education programs because they want to get involved in outside activities (2009). This approach

should not be the sole reason for wanting to implement conservation education programs, however, as it does not successfully lead to schoolchildren taking action for the environment. Education *in* the environment nonetheless is an important aspect of New Zealand school systems (Eames et al., 2008). Schoolyard and outdoor education activities are essential since students learn most through experiences and reflection as they connect learning with their actions and their emotions (Roth, 2008). Of all three approaches, most conservationists agree that education *for* the environment should have the most emphasis (Taylor et al., 2009). Eames et. al. (2008), states that "Education *for* the environment implies that as an aspect of their learning, students should actually engage in some form of action that will contribute to a more sustainable future" (p. 37). Conservation education programs for schoolchildren ultimately must involve the implementation of all three approaches with more of a focus on education *for* the environment in order to lead to direct action to help the environment.

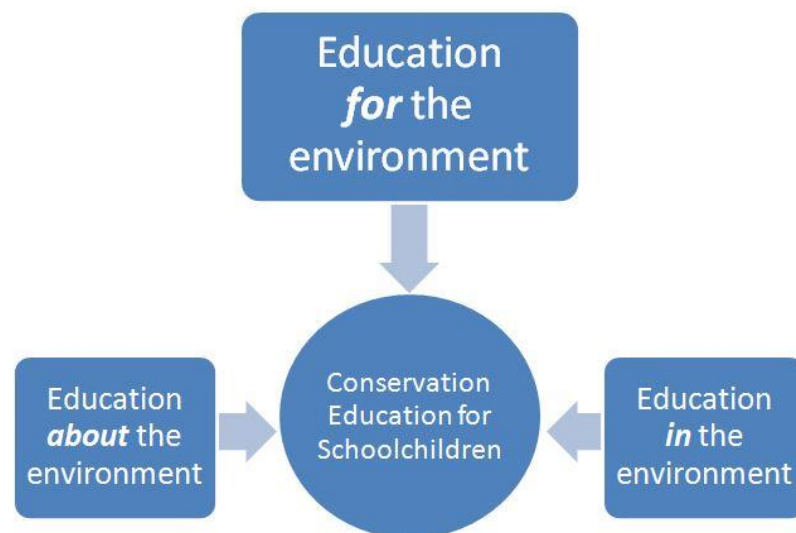


Figure 8: Conservation Education Approaches for Schoolchildren

One example of a program that has implemented successful conservation education programs is The United States Department of Agriculture (USDA). The USDA promotes children to take action by providing them with the scientific knowledge on how to save their local environments. They understand the notion that children make connections through experience and they discover answers by learning. By allowing them to work *in* the

environment and be outside, children can physically interact with their natural surroundings. This exposes their senses to the physical environment and allows children to connect what they have learned in the classroom to reality (United States Forest Service, 2009; Wilson, n.d.).

The USDA has previously employed a successful national symbols program. The goal of the national symbols program is to produce conservation material through conservation messaging using Smokey the Bear and Woodsy Owl (United States Forest Service, 2009). Each mascot stands for a different part of conservation and has its own motto. In 2008, 16,000 children entered the annual Smokey the Bear and Woodsy Owl poster contest (United States Forest Service, 2009). The success of this contest suggests that children react very positively to associating a mascot to a conservation issue and will be enthusiastic about participating in programs that involve a familiar mascot.

The most effective ways to raise awareness in younger children (up to age six) is to allow the children to explore and interact with their environment (Wilson, n.d.). It is important that children are able to independently play and socialize in order to cultivate a sense of curiosity about the environment (Wilson, n.d.). One example is a case study where researchers attempted to raise awareness of the Eastern Bilby, an endangered Australian marsupial (Gambino, Davis, & Rowntree, 2009). The study allowed children to spend half a day in the forest, exploring, socializing and participating in active story telling where the children helped characters solve environmental problems (Gambino et al., 2009). The day included a story by a Bilby character, who mimed out how it was threatened (Gambino et al., 2009). This method allowed the children to connect to the Bilby on a personal level and see it as a “friend in need” which they would like to help (Gambino et al., 2009). This type of emotional connection is important for all age groups because people will remember emotional responses from their childhood more than factual ones (Wilson, n.d.).

An effective way to teach conservation among 6 to 12-year-olds is to use context-based learning (Chen & Cowie, 2013). Context-based learning is a technique in which children focus on learning authentically by discovering information for themselves rather than being told facts (Chen & Cowie, 2013). For example, instead of simply telling the

students about predators in their area, they would perform an experiment to track predators in their backyard (Chen & Cowie, 2013). For this age group, it is essential that children are given an active role and allowed to participate (Wilson, n.d.). In a 2013 study, this method was used to raise awareness of New Zealand's native bird species (Chen & Cowie, 2013). The children read articles and performed experiments to learn about the adaptations of native birds and what threatened them (Chen & Cowie, 2013). This approach led to children retaining more knowledge than previous curricula that used fact-based learning, and led them to take direct action to help protect native birds (Chen & Cowie, 2013). While children of different ages may learn environmental education in different ways, it is important that these programs are included in school curriculums in order to promote conservation.

New Zealand Ministry of Education has outlined the core values of conservation education that they would like to see be implemented throughout the country's school curriculums. According to the Ministry, conservation education's core values are excellence, innovation, inquiry, curiosity, diversity, equity, community and participation, ecological sustainability, integrity and respect (Te Kete Ipurangi, 2007). The Ministry believes one of the main principles of conservation education should be future focus, which encourages students to be conscious about the future in order to implement solutions to issues such as conservation (Te Kete Ipurangi, 2007). The goals for conservation education are to promote awareness and sensitivity, knowledge and understanding of impact, attitudes and values, responsibility and skills to solve environmental issues (Eames et al., 2008).

New Zealand schoolteachers have varying opinions on how they believe students should learn about conservation. A study done on over 200 New Zealand school systems in 2003 highlighted many of the challenges and issues involved in implementing successful conservation education programs (Eames et al., 2008). Only 37% of teachers stated they taught their students to take direct action *for* the environment and only 12% of the schools had school wide approaches for conservation education (Eames et al., 2008). The lack of resources is a major challenge that prevents conservation education programs from being implemented within school systems (Eames et al., 2008). The study also stated that

secondary school teachers have to follow a prescriptive curriculum and find it difficult to add some element of conservation education to the compulsory subject areas of the school (Eames et al., 2008). Overall, the majority of respondents were optimistic that conservation education would make an impact but the degree of conservation education programs varied greatly from school to school (Eames et al., 2008). The schools that do have a cohesive, school-wide approach to conservation education are called enviroschools (Eames et al., 2008). These schools have sustainability actions throughout their facilities and have conservation education throughout their curriculum (Eames et al., 2008).

As part of DOC's twenty year master plan, DOC takes on the commitment of conservation education through its programs for schools, which use education *about* the environment, education *in* the environment and education *for* the environment. Although they do not capitalize on all three of these methods in each of their programs, they do tend to incorporate at least one or two of these approaches. DOC provides classroom activities ranging from games promoting freshwater fish to scientific experiments where children observe birds in their area (Department of Conservation *Te Papa Atawhai*, n.d.-b). An activity program that DOC implements is aimed at years seven through nine called "Meet the Locals," which educates children about New Zealand's native species and heritage (Department of Conservation *Te Papa Atawhai*, n.d.-b). The program consists of videos accompanied by lesson plans for teachers. DOC also offers many field trips throughout the country for educators to teach their students in nature (Department of Conservation *Te Papa Atawhai*, n.d.-b). These field trips come with material for teachers to present before the trip as well as activities to do on site.

Another portion of DOC's conservation education strategies is to create a series of children's book to teach children about different endemic species. DOC has published two children's books, both written by author and scientist Louise Chilvers, about species that are at risk. One of the books is entitled *Peeking at Penguins!* and the second book is entitled *I See a Sea Lion*. Both of these books use simple facts and illustrations in order to describe the life of 17 different species of penguins and the New Zealand sea lion. These books aim to connect children with conservation in a fun and engaging way so that they can learn about the different species and how they can help to save them.

Despite DOCs current efforts to connect children with conservation, there is still a lack of conservation education specifically for many marine mammal species. There is, however, a teaching resource available regarding the Māui dolphin developed by WWF. This edition, published in 2014, contains information and various activities for teachers to provide their students for levels two through four in New Zealand, but has the potential to be expanded upon to work for higher levels as well (WWF-New Zealand, 2014). This resource coincides with New Zealand curriculum and includes the main values of community engagement, coherence and future focus (WWF-New Zealand, 2014). The goal of this resource is to teach children about the Māui dolphin and other environmental principles, such as pollution, sustainability, caring for nature, understanding how people work to overcome issues in a community, and making proper decisions that benefit the environment (WWF-New Zealand, 2014). WWF's resource also contains all three aspects of environmental education: education *in* the environment, education *about* the environment, and education *for* the environment (WWF-New Zealand, 2014). There are a variety of activities for children to perform, both in the classroom and outside of the classroom, to benefit the Māui dolphin and their education regarding the environment. Some of these activities include writing letters to members of Parliament and newspapers, creating and distributing pamphlets to the students' neighbors, becoming kaitiaki, or guardians, of a nearby waterway, brainstorming other endangered species, and drawing Māui dolphins (WWF-New Zealand, 2014). This resource is an option for teachers to use in their classrooms that satisfies many aspects of conservation education and has a focus on the Māui dolphin.

2.7 Mātauranga Māori in Conservation

New Zealand's indigenous Māori, or tangata whenua (people of the land), arrived from Eastern Polynesia about 1000 years ago (Department of Conservation *Te Papa Atawhai*, n.d.-b; Liu, Wilson, McClure, & Higgins, 1999). Centuries later, beginning in the 1830s, Europeans extended their rule to include New Zealand and the native Māori people (Liu et al., 1999). The Treaty of Waitangi was signed in 1840 between the Europeans and Māori but there was many misinterpretations of the wording, especially regarding land ownership (Liu et al., 1999). As more immigrants arrived from Europe, more land was taken from the Māori resulting in the loss of Māori traditional ecological knowledge, or

mātauranga Māori, within those lands. After years of war and disagreements, land disputes were eventually settled.

After initially being rejected, the Māori culture eventually became an increasingly important aspect of New Zealand's heritage as part of a cultural renaissance. In 1975, with the passing of the Treaty of Waitangi Act, the Waitangi Tribunal was established to ensure that the New Zealand government does not break any promises or agreements with Māori that are outlined in the Treaty of Waitangi (New Zealand Ministry of Justice, n.d.). Under the Conservation Act of 1987, DOC is required to collaborate with Māori in terms of its conservation efforts (Taiepa et al., 1997). As of 2013, people of Māori descent make up 15% of the total population in New Zealand ("Census Quickstats about Māori," 2013). Te reo Māori has been declared an official language of New Zealand, in addition to English (AtoZ The World). As Māori have been tied to the same land for centuries, they take pride in the endemic species of New Zealand and have stayed connected to their native environment.

Māori culture has had a tremendous impact on the dynamics of the New Zealand learning system with the introduction of a new form of education different from the Pākehā (non-Māori) system. As Māori revival movements gained popularity within the 1980's, the Ministry of Education recognized the establishment of many Māori-based education systems throughout the country. Kura Kaupapa (Māori-way) schools, established under the philosophy of their foundation document, Te Aho Matua, emphasized Māori values, principles and practices (Lourie & Rata, 2014). Kaupapa Māori schools help to emphasize the validity of Māori ways of learning and their rights to flourish within their native land as tangata whenua (Pihama, Smith, Taki, & Lee, 2004). Rata & Tamati (2013) argue that Māori schools were set up "to ensure the survival and revival of the Māori language" (p. 262). Kura Kaupapa schools highlight tribal identity and provide social unity (Rata & Tamati, 2013). According to Stewart (2005), "it is the whānua atmosphere and positive self-image that enhance achievement [and promotes te reo Māori language]" (p. 865). Māori curriculum (Te Marautanga or Aoteroa) provides the skills necessary to contribute to Māori society while promoting whānau (family), hapū (subtribes) and iwi (tribes) (Lourie

& Rata, 2014). Since it is such an important aspect of New Zealand society, practicing Māori culture is a valuable component of education.

Māori learn through a form of knowledge known as mātauranga, which has been passed down from generation to generation. Mātauranga is understood to be a culturally based form of learning (Newman & Moller, 2005). Newman and Moller (2005) define mātauranga Māori as “a mixture of spiritual and natural history observations gleaned over centuries of living and working in the environment” (p. 317). This indigenous knowledge comes from spending abundant amounts of time outdoors and stems from the interaction between people and their environment (Jacobson & Stephens, 2009). One must become immersed within the environment to gain this form of knowledge (Barriball, 2014). According to Barriball (2014), “You don’t learn mātauranga, you become part of it and in time you come to see and understand what is needed to ensure that the balance [within the environment] is maintained” (p. 4). This form of knowledge has a very holistic style as it is deeply connected to not only all of the physical world, but also the spiritual world, and is thus very conscientious of environmental conservation (Barriball, 2014). This environmentally conscious form of knowledge can be incorporated into New Zealand’s conservation strategies to help solidify the nation’s approach to saving many of its endemic species, such as the Māui dolphin.

To understand this multifaceted approach to knowledge and learning, one must grasp the six key concepts of mātauranga Māori as shown below in Figure 9. Whakapapa is known as the link between living and non-living things (Barriball, 2014). This concept is synonymous to the genealogy of all life on Earth. Whakapapa is what connects the Māori deeply within the environment, as it is the notion that relates all life to the Māori gods that created Earth (Barriball, 2014). The second concept is mauri, which is considered the life force or spirit of all living and non-living things (Barriball, 2014). This concept is the strong connection between spiritual and physical worlds and also symbolizes the health of the ecosystems (Barriball, 2014). Kaitiakitanga is known as the responsibility or guardianship of actively caring for the environment, or environmental stewardship (Barriball, 2014). Mana is considered the authority to manage lands and natural resources (Barriball, 2014). It is comparable to having jurisdiction over maintaining and preserving certain lands. If the

mauri of the land is degraded due to poor maintenance and care, an individual's mana can be diminished (Barriball, 2014). Tikanga is considered the correct ethical and moral way of doing something (Barriball, 2014). This concept is comparable to laws that spell out the right from the wrong. The last concept is ritenga, which is considered the active roles within the lands to help sustain society (Barriball, 2014). These six individual concepts together make up this indigenous knowledge system of mātauranga Māori and have helped the Māori become an environmentally conscious society.

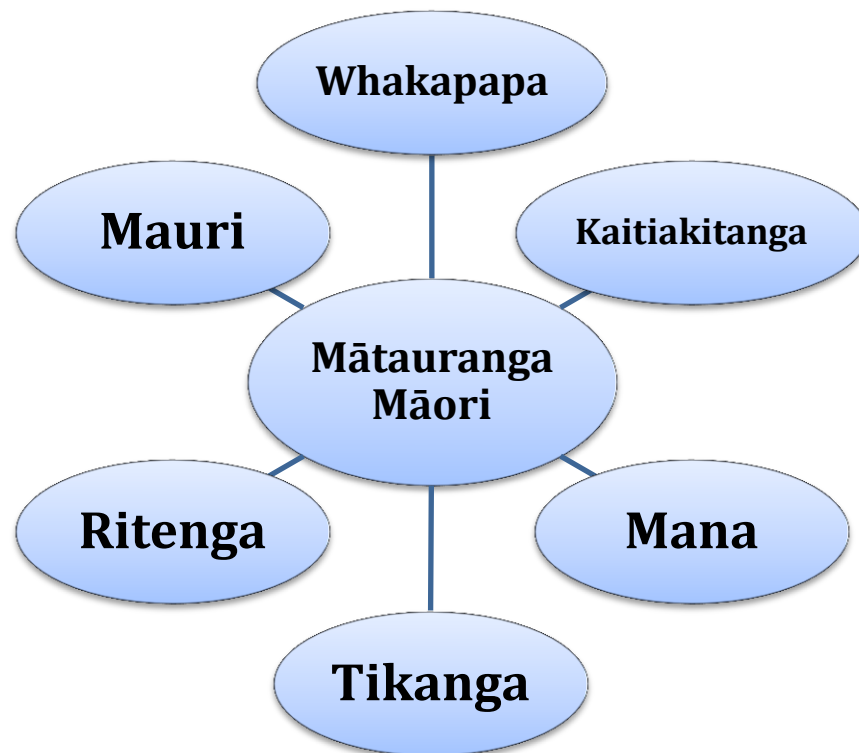


Figure 9 Key Concepts of Mātauranga Māori

After European colonization, these six key concepts of mātauranga Māori declined, but more recent efforts have helped to preserve this knowledge system. The loss of native lands held by the Māori has led to a weakening of mātauranga Māori and cultural identity as the Māori connections to their respective mana declined (Barriball, 2014). Since mātauranga Māori is regionally specific and cannot be broadened to all of New Zealand, a loss of lands has been detrimental to that specific area's mātauranga Māori (Barriball, 2014). Assimilation of Māori into European culture also has led to a lack of adequate

transmission of mātauranga Māori (Barriball, 2014). Modern employment has ultimately prevented Māori from perfecting and transmitting this knowledge to younger generations (Barriball, 2014). Treaty settlements however, as well as partnerships with the Department of Conservation, have been working with Māori to help restore mātauranga Māori as these groups realize its importance in terms of preserving the environment (Barriball, 2014). Throughout all these hardships, mātauranga Māori has ultimately survived due to its capabilities to be adaptive (Barriball, 2014). Mātauranga Māori today is constantly evolving since it integrates new experiences as well as aspects from other knowledge systems such as Western science (Barriball, 2014).

Mātauranga Māori and Western science are two different perspectives and ways of thinking, which can work together to cover areas that the other would miss if viewed separately. According to Barriball (2014), “Mātauranga Māori should be acknowledged as an accepted tool to conserving our environment and be given an equivalent status to that of Western science” (p. 10). The two knowledge systems share different views but both methods can be effective for conservation efforts. Western science is a knowledge system that contains specific subject areas that one would study (Barriball, 2014). Mātauranga Māori has multiple disciplines, such as resource-use, building, and philosophy, but takes on a more holistic approach by combining the ideas of these topic areas (Barriball, 2014). Both Western science and mātauranga Māori take into account multiple variables when studying and making decisions (Barriball, 2014). The only difference is the type of variables each knowledge system uses. For example, when studying the natural environment, Western science monitors variables such as the living and nonliving objects, rates of change, and components of the environment (Barriball, 2014). Mātauranga Māori takes into account all of the components of the environment and relates it to the mauri of everything else in order to determine the balance of human interactions within the ecosystem (Barriball, 2014). The idea of peer revision is also used in both knowledge systems. Once findings and articles are finalized in Western science, experts in the subject field peer review the material and check the accuracy before being published to the public (Barriball, 2014). Similarly, mātauranga is discussed and peer reviewed by specialists that study mātauranga

within the same rohe, or region (Barriball, 2014). These similarities make working with mātauranga Māori and Western science across two cultures more feasible.

Although mātauranga has many similarities to Western science, there are also very distinct differences. The Western science (euro-centric) approach is to preserve the environment in order to conserve it. This perspective sees human impacts as causing environmental damage and being very problematic to biodiversity (Taiepa et al., 1997). The mātauranga Māori (indigenous) approach is to conserve the environment so that there are sustainable resources for future use. From this perspective, mankind is connected to the entire ecosystem. All moderate human impacts on the environment are seen as a natural component of this interconnected environment (Taiepa et al., 1997). Another important difference between Western science and mātauranga Māori is the spiritual element. Western science has no use of a spiritual component within its practices, while mātauranga Māori has a heavy spiritual influence (Barriball, 2014). This unique aspect of mātauranga Māori provides additional perspectives that may not be acknowledged with Western science alone.

These distinct differences between mātauranga Māori and Western science have also led to cultural complexities and concerns in terms of conservation for New Zealand. Over the years, some Pākehā (non-Māori) have viewed mātauranga Māori as a “primitive” method and not useful for conservation. This view has stemmed from the fact that the majority of Pākehā still do not fully understand the concepts of mātauranga Māori due to its culturally embedded, regionally specific and complex nature (Taiepa et al., 1997). However, it has been evident through Waitangi Tribunal cases over the years that incorporating mātauranga Māori has led to great environmental improvements (Taiepa et al., 1997). Many organizations, such as DOC, have struggled to incorporate mātauranga Māori in their conservation efforts since it is a very complex, holistic way of learning (I. Angus, personal communication, February 20, 2015). Mātauranga Māori, sometimes called traditional ecological knowledge (TEK), is also not very accessible since it is linked to Māori oral traditions that do not always have a direct connection to current knowledge (Wehi et al., 2009). There also is no established way to uniformly record, organize or present TEK, or mātauranga (Moller et al., 2009). For Pākehā, mātauranga Māori must be put in terms that

make sense to their own cultural ways of learning (Wehi et al., 2009). Another challenge of incorporating TEK is the fact that one cannot take the concepts for face value (Wehi et al., 2009). TEK, or mātauranga Māori, has deeper, more symbolic meanings that are difficult to fully interpret and grasp for someone that is not brought up learning through this manner (Wehi et al., 2009). Even though these challenges have been major obstacles to integrating mātauranga Māori and Western science successfully, many scientists have realized the immense benefits of achieving this feat. According to Wehi et. al, “ecologists [have] come to recognize that many "natural" ecosystems are in fact "cultural" landscapes that are human-modified, [and an] examination of TEK and indigenous resource management strategies have become more important to effective conservation of biodiversity” (p. 202).

Mātauranga and the Western science system were directly compared when a specific iwi, Rakiura Māori, and ecologists of the University of Otago partnered to gain insight on the Māori harvesting habits of specific endemic species called the tītī bird (Crawford, 2009). Rakiura Māori used Traditional Environmental Knowledge (TEK), which is equivalent to mātauranga Māori, and the university research team used Western science to co-manage this research project (Berkes, 2009; Moller et al., 2009; Newman & Moller, 2005). TEK provided varying points of view from the typical western science approach, allowing researchers to assess their scientific data from this different perspective. TEK also challenged the hypotheses that Western scientists developed (Newman & Moller, 2005). Overall, Crawford concluded that the exchange of information during this co-management research project was a major barrier due to misunderstandings between the two groups as a result of their different forms of knowledge (2009). If trust between Māori and scientists is reached and both groups recognize the benefits of these differences in their knowledge systems, mātauranga can work with Western science to implement environmental management of the tītī bird, and thus other species such as the Māui dolphin (Moller et al., 2009).

Mātauranga has the potential to successfully be used in junction with western science in order to satisfy the learning and thinking of two very different cultures. According to Moller, (2009) “cultural diversity in approaches to environmental management can potentially strengthen and hasten the search for successful solutions to

global environmental crises” (p. 271). In regard to conserving a species, especially the Māui dolphin, working in tandem with mātauranga Māori and Western science can prove to rapidly progress the situation, as it provides both knowledge systems in which one may fill the gaps of the other. It is of vital importance to include both mātauranga and Western science in order to properly relate to the entire population of New Zealand.

3 Methodology

3.1 Introduction

Our project aimed to achieve two major goals. The first was to determine what steps individual and communities can take to save the critically endangered Māui dolphin. The second sought to build support for Māui dolphin conservation within the general public and target schoolchildren through the use of mātauranga Māori and conservation education. The team produced an educational video to be used at Māui Dolphin Day in Raglan, as well as producing a children's book that incorporated the concept of mātauranga Māori. We accomplished these goals through the following three objectives:

- 1. Understand the perspectives of Māui dolphin conservation stakeholders, such as activists and fishermen, regarding current conservation efforts.**
- 2. Identify practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation.**
- 3. To acquire insight into mātauranga Māori and conservation education from Raglan educators and community activists for the purpose of developing outreach materials that encourage more widespread engagement with Māui dolphin conservation initiatives.**

3.2 Objective 1: Stakeholder Perspectives

Understand the perspectives of Māui dolphin conservation stakeholders, such as activists and fishermen, regarding current conservation efforts.

The team conducted in-depth qualitative interviews with nine key stakeholders. It is important to note that these interviewees are all highly involved or affected by Māui dolphin conservation and do not represent all stakeholders of Māui dolphin conservation. Seven of the key stakeholders are members of the Raglan community, a very environmentally aware town in the heart of the Māui dolphin range. A description of each of the interviewees can be found below in Table 1.

Interviewee	Affiliation	Location	Date Interviewed
Sheryl Hart	Recreational Fisher, Raglan Sport Fishing Club	Raglan	January 29, 2015
Graham Hart	Recreational Fisher	Raglan	January 29, 2015
Phil McCabe	Chairperson of Kiwis Against Seabed Mining (KASM)	Raglan	January 29, 2015
Malibu Hamilton	Activist Involved with WEC, of Māori descent	Raglan	January 29, 2015
Rick Thorpe	Marine Mammal Officer for 8 years, Xtreme Waste	Raglan	January 30, 2015
Davis Apiti	Kaitiaki of his Iwi, been working to save the dolphin for 15 years	Raglan	January 30, 2015
Christine Rose	Māui's and Hector's Dolphin Education Action	Auckland (via phone)	February 10, 2015
Aaron Laboyrie	Retired Commercial Fisherman of 25 years	Raglan	February 17, 2015
Peggy Oki	Surfer and Marine Activist	Raglan (but is from the USA)	February 19, 2015

Table 1 Interviewees and their Affiliations

In the interviews we wanted to address the following main questions:

- What do you see as the biggest threat to the Māui dolphin?
- What does the Māui dolphin mean to you?
- Why is Raglan important in the conservation of the Māui dolphin?

The complete interview protocol can be found in Appendix B.

The community of Raglan is a key target group to engage in the conservation of the Māui dolphin, as they are located directly within the range of the Māui dolphin population.

The team talked to these key stakeholders in order to learn what has been done previously, to positively contribute to Māui dolphin conservation and why Raglan is so unique in the conservation of this species.

The reason that the team only traveled to Raglan, and not other less conservation-minded communities, was due to the fact that we wanted to recommend actions for the public to take to positively contribute to the Māui dolphin conservation and find ways Raglan's efforts could be translated to those other communities. By talking to the people who are already very involved in Māui dolphin conservation, we learned what they were doing well, and were able to suggest their general actions to other people and relay this information back to DOC. From our own research, we found that community involvement is very important especially when it involves problems that reside within those actual communities. People are more willing to take action to fix problems that are within their own communities. Therefore, by talking to Raglan, we hoped to gain insightful knowledge on how this information could be translated to other, less conservation-minded communities along the west coast who are in the range of the Māui dolphin. We were not attempting to assess the current public awareness efforts, so talking to other communities was not beneficial to the team or in their best interest due to time constraints.

The contacts and meetings with the eight key stakeholders in Raglan were arranged through Whāingaroa Environmental Centre (WEC). As the team had to travel from Wellington to Raglan, the interviews were held over the course of two trips. During the first trip to Raglan, the interviews spanned two days with four interviews on the first day and two interviews on the second day. On the second trip, the team interviewed the last two stakeholders and conducted other interviews throughout the week.

The reason that the team conducted qualitative interviews, as opposed to a large focus group, was to get the key stakeholders in Raglan to relay their individual experiences. This approach was better than conducting an interview in a group setting with multiple interviewees because in our plan, what one interviewee said did not influence another. Additionally, the interviewees did not have to compete with one another to be heard, which is usually a problem during community reviews of government policies (L. Boren, personal

communication January 20, 2015). The flexible nature of the in-depth qualitative interview structure allowed the team to gain personal, detailed information to understand the history and context for Māui dolphin conservation. The team also aimed to learn the personal motivations for Māui dolphin conservation as well as the dynamics among the different stakeholders of the Māui dolphin conservations, including the relations between DOC and the Raglan community.

The entire team conducted the personal interviews with the individual key stakeholders in Raglan. Three students (Jessica, Lukas and Guy) led the interviews while the other student (Lindsay) took notes. Since there was no lead interviewer, this allowed the team to build off each other and ask questions that the other interviewers had not thought of or simply missed. Although this approach was very beneficial to understanding individual perspectives, there were some limitations. Our findings are not representative of New Zealand as a whole and thus we cannot generalize the findings of the study. However, we were not interested in generalizing the data as we were interested in finding insights and meaning in order to develop and recommend specific actions for the public to take, individually or as a community, that make a positive difference in the conservation of the Māui dolphin.

We analyzed this data by first recording the interviews through the use of a video camera or audio recording (depending on the interviewee) and had one group member take notes. Videos were only taken with permission. The team decided whether to use video or audio recording on a case-by-case basis depending on the preference of the interviewee and the specific question being asked. Sometimes, interviewees were not frank with the interviewers when they were being videotaped so it was beneficial to the team to not videotape the entire interview. Individually, the team transcribed each of the interviews. The team member who wrote the transcription of the interview then carefully read through their transcription and noted important key themes that emerged from the interview by hand. Then the team discussed and compared these key themes across all of the interviews to find major differences and similarities between each interviewee's responses. The key themes were organized into groups with similar sub-themes to understand the overall large picture of the interviewees' responses. Finding the key themes

from these interviews was feasible to do by hand. A master list of the key themes organized into groups is located in Appendix K.

3.3 Objective 2: Actions

Identify practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation.

The team asked all key stakeholders what they thought should be done to protect the Māui dolphin in order to create a list of practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation. The specific question asked to the interviewees was:

- What do you think should be done to protect the Māui dolphin, outside of, or in addition to government policy changes, some examples may include codes of conduct, education, local guidelines etc.?

This question allowed the team to learn directly what these key stakeholders think should be done by communities and DOC to protect the Māui dolphin. The reason that the question included *outside of, or in addition to government policy changes* is due to the fact that government policy changes are outside the scope of our project. From these interviews, and in collaboration with DOC, the team developed specific actions for the public to take in order to positively contribute to the conservation of the Māui dolphin.

The team also talked to surfers from Raglan, in order to gain their perspective on the Māui dolphin and what methods they believed would be the most effective to communicate with the surfing community. The team decided to target the surfing community due to the information gained in the key stakeholder interviews who indicated that the surfers are very connected to the marine environment and may see the dolphin often. One of the most important questions that the team asked surfers was, *What do you think would be the best method of communicating with surfers on how to properly report a Māui dolphin sighting?* This was an important question to ask in order to gain insight on how DOC may be able to communicate with surfers so that more Māui dolphin sightings may be reported. The team also learned about the personal connections that surfers have to the marine environment and specifically to the Māui dolphin. The full list of surfer

interview questions can be found in Appendix D. The master list of the key themes from the surfer interviews can be found in Appendix K.

3.4 Objective 3: Mātauranga Māori and Conservation Education

To acquire insight into mātauranga Māori and conservation education from Raglan educators and community activists for the purpose of developing outreach materials that encourage more widespread engagement with Māui dolphin conservation initiatives.

Tangata whenua, the Māori people, are treaty partners of DOC, and thus are a key target group to engage in raising awareness about the Māui dolphin. By incorporating Māori knowledge into our awareness material, we could target a wider audience in New Zealand. We learned the Māori perspective on marine mammals, specifically the Māui dolphin, through some of the interviews with key stakeholders in Raglan who are of Māori descent, and interviews with teachers from Raglan Area School.

To better understand mātauranga Māori, the team asked the following questions about this concept during the key stakeholder interviews with those individuals of Māori descent.

- How does the Māui dolphin connect to Māori culture?
- How do you see mātauranga Māori being implemented into awareness material about the Māui dolphin?

The team aimed to understand the various cultural connections, both Māori and non-Māori, with the Māui dolphin and relay this information back to DOC so that future outreach materials will be able to tie in these cultural connections with the Māui dolphin and thus have a greater impact by demonstrating the cultural importance of this species to New Zealand.

The team also conducted qualitative interviews with teachers in a single school in Raglan with a heavy Māori influence. This school, called the Raglan Area School Te Kura A Rohe O Whaingaroa, has a Māori syndicate, also known as the total Māori immersion section of the school, and has about 80% Māori students enrolled within the school system (Raglan Area School, 2015). The school is also an enviroschool and therefore has

conservation education embedded within its curriculum (Raglan Area School, 2015). The school teaches children from year zero to fourteen, this includes all ages from younger than five to seventeen (Raglan Area School, 2015). The total Māori immersion section of the school, also known as Te Roopu Aroha Ki Te Reo, teaches the children, from year zero to nine, how to read, write and speak in te reo Māori and focuses on mātauranga Māori in its curriculum (Raglan Area School, 2015).

The team interviewed teachers in Raglan because the New Zealand Department of Conservation has identified school children as a key target group to educate about the critically endangered Māui dolphin. This is in order to address DOC's long-term plans for conserving the Māui dolphin and the fact that only 38% of survey participants reported learning about it in school (Lowe et al., 2014). The team asked teachers what current material they use to teach about the Māui dolphin and we also assessed which methods would be the most effective to raise awareness specifically about the Māui dolphin. After conducting an extensive literature review in Worcester, we obtained the most current opinions about conservation education from the educators who teach the material. By obtaining current opinions we were able to better recommend conservation education programs regarding endangered species such as the Māui dolphin

The team only interviewed teachers from one in Raglan school since this was the only school DOC identified for the team to interview. In addition to interviewing teachers, one teacher, Kylie Hollis, from the total Māori immersion section of the school invited the team to sit in on one of her lessons about the Māui dolphin for students in years three and four. After the lesson, the team also helped the children pick up rubbish near their school in order to demonstrate one of the actions they could do to help the Māui dolphin. DOC had internal contacts with this school and therefore made it easier for the team to set up interviews with teachers. This one school was of great importance to the team due to their location in the Māui dolphin range, the fact they already have conservation education within their curriculum and a strong Māori background that is embedded within the school itself.

There were several challenges that we faced while working with schoolteachers. It was difficult to set up interviews due to the lack of free time teachers had during the school week. Teachers were often busy teaching classes and were only available at limited times throughout the week. Therefore, the team made sure that our time spent in the Raglan Area School was flexible to accommodate the teachers' schedules and set up interviews that worked for everyone. The team spent three days within the school to set up and conduct interviews with various teachers. All team members participated in the interviews in order to make sure all questions were covered. The team conducted seven interviews with teachers and all the interviews were audio recorded so that transcripts of the interviews could be used for further analysis. One team member took notes (Lindsay) while the other team members conducted the interview (Guy, Jess, and Lukas). The complete list of teachers that were interviewed, as well as their role at the Raglan Area School can be found in Table 2 below. The interview questions the team used to conduct the seven interviews with the teachers are located in Appendix C.

Jeanette Mcdonnell-Rata	Art Teacher at RAS	February 17, 2015
Quenten Browne	Deputy Principal	February 17, 2015
Deane Hishon	Head of Surf Academy at RAS	February 17, 2015
Lee Copson	Head of Science at RAS	February 17, 2015
Pete Maloney	Teacher at RAS, Avid Surfer	February 17, 2015
André Ngāpō	Teacher at RAS, Author, Songwriter, of Māori Descent	February 18, 2015
Angela Prain	Head of EnviroSchool at RAS	February 18, 2015

Table 2 Teacher Interview Information

The interview questions addressed several topic areas: their current conservation education curriculum, their views on current conservation education, the current ways in which the Māui dolphin is incorporated into their current curriculum, and what additional materials the teachers would like to see from DOC. The teachers who were also surfers, such as Deane and Pete, were asked additional questions to learn their perspectives on how surfing can help with the Māui dolphin conservation. The teachers who were of Māori

descent were asked questions about how mātauranga Māori is incorporated into their classroom and utilized to teach about conservation of various species including the Māui dolphin.

The team also asked the teachers questions about their opinions on the effectiveness of children's books in conservation education. We were originally going to assess their opinions on a series of books promoting the conservation of endangered species published by DOC. However, since they did not know about these books beforehand, the team showed them the books during the interview and asked them their opinions on how they could be improved. We wanted to learn the extent to which they see the books as an effective way to teach children about the need to protect and save endangered species.

In the interviews, the team looked for relevant information to make recommendations about programs DOC should develop to raise awareness of the Māui dolphin for children. We asked teachers what current material they use to teach about the Māui dolphin so that these methods may be applied elsewhere. We also looked for ways that the teachers could improve their current programs on the Māui dolphin by asking the teachers for any recommendations on lesson materials they would like from DOC. The key themes that emerged from the teacher interviews can be found in Appendix K.

The information that we gained during the teacher interviews was incorporated into a children's book as one of our outreach awareness materials. The children's book targets schoolchildren and as a result, the families of schoolchildren. It incorporates concepts of mātauranga Māori that were learned through the interviewees of Māori descent from both the teacher interviews and key stakeholder interviews. The children's book, entitled *Meet the Māui Dolphin*, has become part of the existing series of endangered species books published by DOC. Currently, there are two other books in this series, one entitled *I see a Sea Lion* and the other *Peeking at Penguins!*. These books aim to teach children about endemic species of New Zealand and how they can help save them and their habitats. By drafting a children's book, the team has helped to inform children about the Māui dolphin and raise awareness about its critically endangered state. We included aspects and ideas

from mātauranga Māori, as well as had the book translated into te reo Māori so that both languages can be used. The book was created in collaboration with the DOC publishing team that has produced the two previous books. They reviewed and assisted with the production of the book due to our lack of experience in the publication of children's books. Before the team left New Zealand they gave the DOC publishing team a mock-up of the book, which the publishing team then revised and published. Due to time constraints, the finalization of the book occurred after the team's departure from New Zealand.

The other outreach awareness material that the team created was an educational video about the Māui dolphin. This video includes broad background information about the dolphin to inform the general public about the dolphin and further raise awareness. A description of the video as well as the full script can be found in Appendix G. DOC presented our awareness material at Māui Dolphin Day in Raglan, which we were unfortunately unable to attend, since this event was held the weekend after we left New Zealand. Māui Dolphin Day is a very popular event organized by two local NGOs, WEC and Xtreme Waste, that attracts many of the local people who live in the range of the Māui dolphin and targets a broad audience from young children to the elderly. The event is described by WEC as "a collaborative community celebration highlighting the importance of our marine environment, our whānau and our community's creativity and spirit" (Whāingaroa Environment Centre, 2015). During this annual event, the Raglan community, which includes families and individuals who live and work in the area, come together to celebrate the Māui dolphin and learn more about how they can positively contribute to its conservation.

3.5 Timeline

The timeline of how the team budgeted their time in New Zealand can be found in Appendix E.

4 Findings and Analysis

4.1 Introduction

The findings in this section are a result of the interviews that were conducted with teachers and key stakeholders of Māui dolphin conservation. These interviews provided insight into current efforts on Māui dolphin conservation and what the interviewees believe should be done to further protect the Māui dolphin population. In our findings, we consider these stakeholder views in the broader context of current policies to protect the Māui Dolphin. These findings are organized by our objectives noted in the previous chapter:

- 1. Understand the perspectives of Māui dolphin conservation stakeholders, such as activists and fishermen, regarding current conservation efforts.**
- 2. Identify practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation.**
- 3. To acquire insight into mātauranga Māori and conservation education from Raglan educators and community activists for the purpose of developing outreach materials that encourage more widespread engagement with Māui dolphin conservation initiatives.**

4.2 Findings for Objective 1: Stakeholder Perspectives

The team interviewed key stakeholders, mostly consisting of activists and fishermen. It should be noted that the team did not talk to all potential stakeholders of Māui dolphin conservation, such as the government officials from various ministries and mining companies. During each interview with the key stakeholders, the team asked what the interviewees believed was the biggest threat to the Māui dolphin and the biggest obstacles to promoting Māui dolphin conservation. There were varying opinions from each of the interviewees based on their different backgrounds, but some similar themes emerged based on the known threats of the Māui dolphin. The team also asked about Raglan's connection to the Māui dolphin and why this location is important in the species' conservation.

4.2.1 Biggest Threats to the Māui Dolphin Population

Overall, stakeholders identified the biggest threats to be runoff from land use, predators, fishing, and human-induced decimation of biodiversity. According to a 2012 study, DOC identified fishing related threats, such as set net and trawl fishing, as the largest threat to the Māui dolphin population, which will account for 95.5% of all Māui dolphin deaths by 2017 if all threats remain at current levels (Currey et al., 2012). Despite that various stakeholders all disagreed on the biggest threat to the Māui dolphin, they all believe that something needs to be done to address these threats.

Fishermen Perspectives

Fishermen no longer see fishing as the biggest threat to the Māui dolphin population because they have not seen the Māui dolphins beyond the set net ban areas.

The two recreational fishers, Sheryl Hart and Graham Hubert, and the commercial fishermen, Aaron Laboyrie, no longer see fishing as the biggest threat to the Māui dolphin. Since the most recent additions to the 2003 set net bans in 2013, there have been no reported Māui dolphin deaths related to fishing. This, however, may not be accurate because fishermen may be reluctant to report any Māui dolphin deaths, as they could possibly lead to further set net bans. Sheryl Hart is of the opinion that these current bans are enough, if not excessive, to combat the threat of commercial fishing on the Māui dolphin population. Graham and Aaron both agree with the notion that no further set net bans need to be implemented in order to protect the Māui dolphin. Sheryl and Aaron believe this because they personally have not seen a Māui dolphin living outside the original set net ban area. For this reason, they believe that the new bans that were implemented in 2013 are excessive. As a commercial fisherman who has twenty-five years of experience in the business, Aaron knows exactly where many pods of Māui dolphins are located. He has even previously helped DOC with its abundance estimates due to his knowledge on Māui dolphin habitats. Therefore, his claim that he has never seen a Māui dolphin outside the range of the set net bans is strongly supported by his years of experience out on the water. He also noted that he or any other commercial fishermen he knows have never caught a Māui dolphin in any of their nets since the set net bans have been enacted.

Since these new bans have been enacted no Māui dolphins have been caught and reported. This data adds weight to the perspective that fishing may not currently be the biggest threat to the Māui dolphin, but raises the question of whether there have been Māui dolphins caught in nets since the new bans, as mentioned by Malibu. There are strong disincentives for fisherman to report this because it may affect future set net bans, which would reduce the areas they can fish. Although Māui dolphins have not been sighted outside of the current set net ban area, it may be hard to spot a Māui dolphin because they have been known to swim in murky waters and seeing them is a rare occurrence due to their low numbers. This makes verifying whether or not Māui dolphins are located only in the set net ban areas very challenging. Aaron believes that it is easy to blame commercial fishermen because of their previous involvement in accidentally catching Māui dolphins. People may still have this view even after the new additions to the set net bans because it is an easy explanation to the decline of a marine species.

Pollution

Pollution has been identified as a threat to the Māui dolphin population due to both non-point sources, such as runoff, and point sources, such as sewage, which affects the quality of water in the Māui dolphin habitat.

Sheryl believes that land use, specifically runoff from land use, and toxoplasmosis were the biggest contributors to the population decline of the Māui dolphin. Land use is how individuals or organizations use their property and what they add to the environment. The addition of any chemicals or harmful products to one's land could then get washed away during rainfall and run off into tributaries leading to the sea, which in this case, is the Māui dolphin habitat. Sheryl believes that toxoplasmosis from cat feces could runoff from people's land after disposal and end up in the water where Māui dolphins live. From our background research, toxoplasmosis has been scientifically proven to be the cause of death in some Māui dolphins. The process of transmission to the Māui dolphin requires further research though, as this progression is still scientifically unknown and hasn't been proven to be from cats. This may be difficult to test, as there are only an estimated 55 individual Māui dolphins left and experimenting on such a small population size may not be feasible.

Aaron also believes pollution is another major threat to the Māui dolphin. He believes that sewage going into the waterways, even though it is treated, could be threatening the Māui dolphin habitat. Graham disagrees with Sheryl and Aaron that land use is the biggest threat to the Māui dolphin population. He stated, “We talk about pollution and run off from the countryside but we are in a very remote area,” (G. Hubert, personal communication January 29, 2015). Graham is aware of pollution and runoff effects within marine habitats, but because the Māui dolphin habitat is along the coastline of a remote countryside, he argues that this issue is not as big of a threat as predators.

Predators

Predators, such as orcas, have been identified as a threat to the Māui dolphin population because large pods of orcas have been seen in the Māui dolphin habitat.

Graham Hubert claims that predators of the Māui dolphin, such as orcas, are the biggest threat to their population. Aaron also supports the claim that natural predators, most likely orcas, are a major threat to the Māui dolphin. Aaron states he has seen many pods of orcas throughout the Māui dolphin habitat and noted how these apex predators could easily swallow and eat these dolphins whole.

The theory that orcas are predators to Māui dolphins, however, is difficult to prove. DOC states that orca may predate on Māui dolphins, but there are no known instances of this happening (Ministry for Primary Industries: *Manatu Ahu Matua* & Department of Conservation: *Te Papa Atawhai*, 2012). Again, since the population of Māui dolphins is so low, it may be a rare, but very significant, occurrence when an orca predate on this dolphin.

Fishing

Most activists still see fishing as the biggest threat to the Māui dolphin, believe the current fishing restrictions are not adequately protective, and that further set net bans are needed.

Both Phil McCabe and Davis Apiti regard fishing as the biggest threat to the Māui dolphin. Phil, representing Kiwis Against Seabed Mining (KASM), and Davis, kaitiaki of his iwi, have both fought very hard for their beliefs regarding Māui dolphin conservation.

Throughout their work, they both see fishing to be the biggest issue to date. Christine agreed, stating gill nets were the largest threat even though other threats should still be considered. Peggy is also of the opinion that Māui dolphins drowning in gill nets is a major threat.

Davis believes that current fishing bans are not enough to allow for the protection of the Māui dolphin. He elaborates that not only does fishing directly harm the Māui dolphin because they get caught in nets, but fishing also degrades marine abundance. It decreases the availability of food for Māui dolphins and thus indirectly affects their population. Overall, Davis believes that the Māui dolphin habitat needs to be undisturbed by humans so that their population and the ecosystem can recover.

The data from the 2012 study by Currey et. al. supports the claim that fishing is the biggest threat to the Māui dolphin population. The population of this species is so low, that it is very critical to prevent any human-induced deaths. Safe fishing practices, such as staying with set nets, and pulling them up if dolphins are spotted, are an easy way to ensure that no Māui dolphin is accidentally caught and killed. These stakeholders want to make sure that any threat that is preventable, such as catching Māui dolphins in nets, is under control by the proper government restrictions.

Degradation of Biodiversity

Degradation of marine biodiversity due to human actions has been identified as a threat to the Māui dolphin population because it has potential to reduce their food sources.

Rick Thorpe views human-induced decimation of biodiversity within the fishery as the biggest threat to the Māui dolphin. Rick thinks that stricter regulations, such as banning all net fishing and switching to line fishing, should be implemented. Rick mentions that people believe bio-abundance is improving because their perception of what is “normal” bio-abundance is not accurate. So in his view, the biodiversity of the ocean is “improving from absolutely pathetic to really, really bad,” (R. Thorpe, personal communication, January 30, 2015). He believes that human ignorance about what it means to be truly bio-abundant is the root of this cause. Unsustainable commercial fishing habits, land use, and loss of

biodiversity, according to Rick, are all caused by humans, and are very destructive to the Māui dolphin population. Due to the fact that these threats are human-induced, Rick believes that humans also have the power to reverse them.

Rick's views are similar to those of Sheryl and Davis. His point about land use and pollution is similar to Sheryl's argument about runoff and what ends up in the water can greatly affect the Māui dolphin in a negative way. Rick's thoughts about fishing and human effects on the fishery also relate to Davis's analyses about reducing the Māui dolphins' food supply. More fishing means less food available, which may make it difficult for the Māui dolphin to sustain itself. Rick's idea to use line fishing, opposed to set nets and trawls, would then increase bio-abundance, leading to a better ecosystem for the Māui dolphin to thrive in.

Seabed Mining and Seismic Surveying

Some activists believe that seabed mining and seismic surveying are a threat to the Māui dolphin population due to their disruptive nature in the Māui dolphin habitat.

DOC currently has a code of conduct in place to protect marine mammals from seismic surveying (Department of Conservation *Te Papa Atawhai*, n.d.-b). Operators must either comply with this code or receive consent from the Environmental Protection Agency (EPA) before they begin surveying (Ministry of Business Innovation and Employment, 2014). Regulations include having trained observers on all boats who watch for marine mammals within certain zones around the boat and these observers will stop any seismic surveying if any marine mammals are spotted in these zones (Ministry of Business Innovation and Employment, 2014). This differs from the activists' perceptions that regulations on seismic surveying are completely voluntary, as a permit is required if operators are not following them. It also differs from their views that operators can survey without restriction in the marine mammal sanctuaries as there are mandatory restrictions that must be followed.

Phil thinks that any disturbance within the Māui dolphin habitat can be detrimental to their population. He thinks seabed mining and seismic surveying are highly disruptive to

the Māui dolphin habitat. Peggy agrees with this and also believes that offshore drilling has similar, detrimental effects on Māui dolphins.

Phil described sonic booms as not only audible sounds, but also powerful bursts that can be felt standing on shore. It is hard for Phil to believe that seismic surveying doesn't have some sort of effect on Māui dolphins, especially because sound travels farther underwater. Both Māui dolphins and their food source may not want to live, breed or feed in waters that have seismic surveying because of the constant disturbance. Drilling for oil could have a similar affect, but also adds the risk of oil spills that will greatly degrade the quality of the water. In the past, oil spills have been known to devastate ecosystems, and the risk of doing so in a Māui dolphin habitat is something that shouldn't be taken lightly. Both seismic surveying and offshore oil drilling can prove to be great threats to Māui dolphins and should be studied further to understand their effects on the species.

These interviews suggest that most of the stakeholders we spoke to agree that the Māui dolphin is being threatened in different ways, that the threats are very serious and that further action should be taken to help save this species. These views are summarized in Figure 10 below.

Sheryl Hart	<ul style="list-style-type: none"> • Land use (runoff) • Toxoplasmosis
Graham Hubet	<ul style="list-style-type: none"> • Predators (such as orcas)
Phil McCabe	<ul style="list-style-type: none"> • Fishing (up to this point) • Seabed mining (if allowed to occur)
Malibu Hamilton	<ul style="list-style-type: none"> • Inactivity of the current government
Rick Thorpe	<ul style="list-style-type: none"> • People (human induced pollution and devastation of biodiversity)
Davis Apiti	<ul style="list-style-type: none"> • Fishing
Christine Rose	<ul style="list-style-type: none"> • Gill nets
Aaron Laboyrie	<ul style="list-style-type: none"> • Predators and pollution
Peggy Oki	<ul style="list-style-type: none"> • Gill nets • Offshore oil drilling • Seismic testing

Figure 10 Biggest threats to the Māui Dolphin Population According to Key Stakeholders

4.2.2 Greatest Obstacles to Māui Dolphin Conservation

Overall, each stakeholder saw different obstacles to promoting conservation of the Māui dolphin. These can be summarized into three main points: the dolphin's lack of economic value, which in turn leads to inaction by government, politics and a general lack of awareness. It is important that these obstacles are addressed in future awareness efforts in order to be successful for Māui dolphin conservation.

Government

Government inaction is seen as an obstacle preventing further protection measures due to the perceived lack of economic value of the Māui dolphin.

Many of the stakeholders believe that enhancing conservation efforts to safeguard the Māui dolphin, such as implementing more regulations, are hindered due to the fact that the current government does not see economic value in the Māui dolphin and consequently does not put resources into its conservation. Rick noted this in his interview, giving an example of the black robin, which they were able to bring back from the brink of extinction

because it did not interfere with other economic activity. In contrast, the Māui dolphin costs the country money because protecting its habitat stops industries such as fishing and seabed mining from expanding. Phil also noted this as well, stating that New Zealand has a growth economy, which wants to exploit the country's natural resources for economic growth. Peggy expressed this point as well, saying that the government is not listening to the letters from conservation groups both in New Zealand, and worldwide asking the government to implement broader fishing bans. Since the dolphin interferes with the government's objectives of growing the economy, it is much harder to pass legislation protecting its habitat. If the stakeholders want more regulations included in the Threat Management Plan, the obstacle of government inaction may have to be addressed. Some people react to the fact that the government is not putting resources towards Māui dolphin conservation by creating NGOs such as KASM to lobby the government. If activists want stricter protections for the Māui dolphin, they will likely need to elect a government that is more willing to put those restrictions in place.

Another viewpoint from one of the stakeholders was that the government, specifically the Ministries for Primary Industries and the Environment and the Minister of Conservation represent the greatest threat to the Māui dolphin. Malibu Hamilton deems the inactivity of the government the biggest threat to the Māui dolphin. He believes that the current government regards the Māui dolphin as holding no economic value, which "outweighs all cultural, social, and environmental aspects of this country," (M. Hamilton, personal communication, January 29, 2015). Malibu felt that the government is not actively enforcing regulations and laws enacted to protect the Māui dolphin. This viewpoint is supported, to some extent, by the fact that observers are not required on most fishing boats because fishermen are expected to self-regulate. This viewpoint is shared by WWF who argues that observer coverage on fishing boats has been too low and underreporting of bycatch is problematic. They believe that any fishing vessel operating in the Māui dolphin habitat should be required to have an independent observer onboard (Palka, 2013).

The Ministries are an easy target to blame, as they are responsible for enacting regulations regarding the Māui dolphin and its habitat. The Ministry of Primary Industries is responsible for enforcing the fishing bans in the Māui dolphin habitat. DOC and MPI work

together to draft the threat management plan, however it is reviewed and enacted by the Minister of Conservation, and Minister of Primary Industries (Department of Conservation *Te Papa Atawhai*, n.d.-b). This puts DOC in a difficult situation because if DOC wants to implement change to benefit the Māui dolphin, they must prove to the ministers why the change is necessary and have scientific evidence to support it. In contrast, groups such as WWF argue that further protections should be implemented because with only 55 Māui dolphins remaining, they cannot risk that one will venture out of the protected areas and get caught in a set net. From these interviews, the team has been led to believe that the current government is very interested in the growing economy by promoting the interests of industries, such as the fishing and mining industries, and puts that ahead of many environmental issues.

Lack of Awareness

A general lack of awareness and public interest is seen as a major obstacle to promoting Māui dolphin conservation, as the public has the power to take action to contribute to saving the Māui dolphin population, but lack the knowledge and motivation to do so.

Another obstacle towards conserving the dolphin is a lack of awareness and public interest. Two interviewees claimed people are unaware of the Māui dolphin's critically endangered state and noted there needs to be more material especially on television that communicates to people that there are only 55 left. This view is consistent with a survey found that only five percent of the public could identify and report a Māui dolphin sighting (Lowe et al., 2014). The same survey also reported that while two-thirds of respondents had heard of the Māui dolphin, many of those respondents did not know important facts about the species, such as the fact that their population is decreasing. This reinforces the need for awareness material that can be distributed throughout New Zealand in order to promote the dolphin.

The lack of public interest to save the Māui dolphin stems in part from people's confusion about the differences between Māui and Hector's dolphins. One interviewee noted that if people saw them as the same species, they may not see a reason to care that

there are only 55 Māui dolphins left due to the thousands of Hector's dolphins off the coast of the South Island of New Zealand. Overall, there are many obstacles interviewees believed are preventing Māui dolphin conservation, summarized below in Figure 11, and they must be addressed in order to effectively protect the species.

Sheryl Hart	•Land use, hard to get support from the public
Graham Hubert	•Conservation work has already been done
Phil McCabe	•The mentality of the growth economy
Malibu Hamilton	•Inactivity and inaction of the government
Rick Thorpe	•No economic value for the dolphin •Not enough political support
Davis Apiti	•People (Ignorance)
Christine Rose	•Politics and fishing
Aaron Laboyrie	•Changing people's ways of thinking
Peggy Oki	•The current government is not listening to people

Figure 11 Greatest Obstacles to Māui Dolphin Conservation According to Key Stakeholders

4.2.3 Significance of Raglan

Raglan residents are very connected to the Māui dolphin because of their geographical location within the Māui dolphin range, their sense of community, their active, outdoor lifestyle and the artistic culture embedded in the town.

By going to Raglan, we hoped to understand what fueled community passion for the Māui dolphin and conservation in general. We wanted to understand if these factors were

unique to Raglan and if these methods and ideas could be brought to other communities on the west coast. Before traveling to Raglan, we worried about how the activists would see us and understand our project since many of the activists in Raglan have been frustrated with DOC's Threat Management Plan, as they do not believe that this plan is enough to protect the Māui dolphin. We thought that that they would focus that anger and frustration on to us. Our visit and interviews with the people in Raglan educated us about the passion they have for this species, which helped us to incorporate their views into our awareness material.

The Māui dolphin is a local issue for Raglan residents, and many community members have worked for years on its conservation. Many residents in Raglan, as opposed to other towns along the west coast of the North Island, have seen the Māui dolphin and therefore formed a personal connection. Peggy described Raglan as “a great community with a lot of people who are really environmentally minded. I call it the epicenter of Māui dolphin conservation as far as sighting and encounters with people” (P. Oki, personal communication, February 19, 2015). While not all community members have seen the Māui dolphin, the dolphin's proximity to Raglan is a large contributor to the community's passion for the species.

Raglan residents are also passionate about the Māui dolphin because of their sense of community. Raglan has come together to address many community environmental issues through local NGOs such as Xtreme Waste and Kiwis Against Seabed Mining (KASM), which both were formed in Raglan. Sheryl expressed this when she stated “Raglan is a community. We have wars in this town about stuff but at the end of the day it's still a community.” (S. Hart, personal communication, January 29, 2015). Due to the fact that this community is on the coast with a beautiful landscape, it attracts many like-minded people. Some of the community members have indicated to us that people come to Raglan for the lifestyle, which includes the coast and the mountains, and by doing so are very encouraged to protect the environment. This sense of community is a large influence in Raglan's passion for Māui dolphin conservation. An image of Raglan's scenic coastline can be seen below in Figure 12.



Figure 12 Te Toto Gorge

Residents of Raglan also identified their active outdoor lifestyle as a source of passion for conservation efforts. The people of Raglan are often outside doing activities in the environment because of the beautiful landscape and coastlines. Many people surf, boat and fish, and it is a Raglan tradition for children to jump off the town bridge (Figure 13) into the harbor after school. The large amount of time spent in the environment makes these residents more observant of changes. They notice when something is wrong in the environment, such as the decline of the Māui dolphin population. Sheryl noted this by explaining the reason she pushed for the initial genetic testing of the Māui dolphin, which was because she noticed their population numbers were decreasing.



Figure 13 The Bridge in Raglan

The town's artist culture is deeply rooted within the Raglan community and has been for many years and is embedded into the culture of the town. It is unclear to the team and members of the community why artists have been drawn to Raglan in the past. Rick hypothesizes that "maybe spiritually that there is [some] connection here with the mountain and the harbor as to why this collection of people are conservation minded. Maybe it's because of those arts that these people see things in a slightly different way" (R. Thorpe, personal communication, January 30th 2015). From these interviews, it was not determined why so many artists have been attracted to the Raglan community in the past, but it is clear that there are many artists here who share a passion for the environment.

However, it is important to note the Raglan is not the only community within the Māui dolphin range. There are many other communities along the west coast of the North Island who are also within the range of the Māui dolphin. Most of the interviewees had never actually seen a Māui dolphin even though they may have lived in Raglan for many years. One interviewee even indicated that it is more common to see the dolphins up north, near Auckland, than in Raglan. The connection that the Raglan community feels to this dolphin is unique, and may be due to the close-knit community, rather than just its geographical location.

By talking to these key stakeholders the team was able to learn why Māui dolphin conservation is so important to Raglan, which is summarized below in Figure 14.

Sheryl Hart	<ul style="list-style-type: none"> •Most environmentally aware town in the country •Strong community, unlike other West Coast towns
Graham Hubert	<ul style="list-style-type: none"> •People connect the Māui dolphin to Raglan
Phil McCabe	<ul style="list-style-type: none"> •Raglan is in the heart of the Māui dolphin habitat •Strong sense of responsibility and passion •Very coastal people who are connected to the ocean •Surfers and artists are environmentally aware
Malibu Hamilton	<ul style="list-style-type: none"> •Raglan cares, home of Māui Dolphin Day •Home of WEC, gets children involved
Rick Thorpe	<ul style="list-style-type: none"> •Very conservation minded •Lots of artists who see things from a different perspective
Davis Apiti	<ul style="list-style-type: none"> •Link to his ancestors and link to the environment •Has good people and the resources to do something
Aaron Laboyrie	<ul style="list-style-type: none"> •Location, Māui dolphin is in their backyard
Peggy Oki	<ul style="list-style-type: none"> •Great community with a lot of people who are really environmentally minded

Figure 14 The Significance of Raglan to Māui Dolphin Conservation Efforts According to Key Stakeholders in Raglan

Replicability of Raglan Conservation Efforts

Raglan’s conservation efforts cannot be directly replicated in other communities in the Māui dolphin range because of the unique nature of each individual town and the fact that other towns share a harbor.

Raglan is an essential community to Māui dolphin conservation efforts. In this conservation-centered community, individuals are extremely passionate about the Māui dolphin and have varying opinions on conservation of this endangered species (J. Penn, personal communication January 20, 2015). Raglan is also a great location to gain insight on the Māui dolphin as it is the southernmost point where Māui dolphins have been recently located (L. Boren, personal communication January 20, 2015). It is important to note there are pre-existing tensions between Raglan and government organizations about the different strategies to Māui dolphin conservation as some members in this community

believe that the government is not doing enough to save the species. The views of this community need to be expressed, as Raglan is a leading community in New Zealand based on conservation efforts, especially with regards to the Māui dolphin (J. Penn, personal communication January 29, 2015).

Most interviewees noted that what Raglan has done as a community for conservation would be difficult to implement along other coastal communities. Raglan is the only coastal community in the range of the Māui dolphin that has their own harbor and therefore takes ownership of its water quality and associated marine environment. Other west coast towns share their harbors with one another so not one single town is solely responsible for those specific waterways. This view assumes that when responsibility for managing resources is diffuse, people are “less likely to take action or feel a sense of responsibility in the presence of a large group of people” (Cherry, 2011). This phenomenon is usually associated with emergency situations in a large city where multiple people can notice the distress, but no one will do anything. It can also relate to this situation in where communities who share the harbor believe that someone else will take responsibly and act, so in the end no one takes responsibility (Cherry, 2011).

The Raglan community has taken actions to protect their harbor, such as putting up fencing along the shoreline to help prevent runoff. Raglan residents are also very environmentally aware and are sure to take small actions such as properly disposing of their rubbish and recycling in order to take care of their beaches, where pollution can end up in the harbor. The interviewees did not indicate that they knew of any other towns along the west coast who have taken similar initiatives to protect their harbor such as installing fencing to prevent runoff. Although the interviewees did not directly note this to the team, it does not mean that other communities have not taken any efforts to help protect their harbors. The team believes that other communities may have taken initiatives to protect their harbor, but the actions may not be as extensive as the ones performed in Raglan, so the interviewees do not know about them. The interviewees argue that since other towns are not fully responsible for protecting their own harbors, as they share harbors with other communities, it takes away from the passion and motivation of a community to want to come together to protect the marine environment.

The interviewees also indicated that conservation efforts overall are not as deeply rooted in other coastal community cultures. It was clear that these members of the Raglan community believed that their community was better than others for Māui dolphin conservation and conservation efforts in general. It is true that this is the only community that hosts an annual Māui Dolphin Day or any similar event, but that is not to say that other communities are not environmentally aware of the dolphin. Māui Dolphin Day is an event that is run by the Whaingaroa Environment Centre in conjunction with Xtreme Waste, two local NGOs who work towards conservation efforts. As of 2015, Māui Dolphin Day had been held for over 10 years and is an annual community event to bring the local community together to celebrate the dolphin (Whāingaroa Environment Centre, 2015).

Implementing Raglan's conservation efforts, however, in other coastal communities could be very challenging due to many reasons. This may be due to the very specific nature of the question: *Can these methods be implemented elsewhere, besides Raglan?* This question may have indicated to the interviewees that the team did not think these methods could be implemented elsewhere and did not get the true ideas and opinions that the team was originally looking for. Instead, the team should have worded the question: *How can other communities contribute to Māui dolphin conservation?* Rather than implying that the methods in Raglan may be attributed elsewhere. It is an interesting paradox that this community that works so hard towards Māui dolphin conservation believes that other communities cannot do the same. The team did not dive into what components specifically led to this sense of community, but if further research was done, some of these factors could be used to build a greater sense of community in other towns on the west coast. This could then set the stage for another community to become as highly involved in Māui dolphin conservation as Raglan. As many different interviewees have noted, New Zealand is always thought of as a green, clean nation, so it is likely that Raglan is not the only community who is connected to the Māui dolphin and can positively work towards its conservation.

One of our interviewees argued that the other coastal towns are more limited in their engagement in conservation and do not have as many fishermen and surfers that are linked to the coast. Others indicated that the surfer community is another reason why the

Raglan community is so connected to the environment, especially the marine environment and the Māui dolphin. However, after talking to some of the local Raglan surfers, the team found that this was not the case. Many of the surfers did indicate that they were connected to the ocean simply because they are in it every day, but it does not mean that they are completely environmentally conscious.

4.3 Findings for Objective 2: Practical Steps

The Māui dolphin conservation stakeholders identified many steps for DOC, individuals and communities to take in order to benefit the Māui dolphin population. These actions range from living sustainably to protesting in the streets. They also identified actions specifically for DOC to take, such as creating stronger partnerships in order to have a wider influence within communities. The stakeholders believe that these actions can positively impact the Māui dolphin population and that several small actions can help.

4.3.1 Interviewee Suggested Actions for Individuals and Communities

In order to gain insight into our second objective to *Identify practical steps community members and DOC can take to encourage positive action towards Māui dolphin conservation*, the team asked the key stakeholders what they believed the general public could do to help protect the Māui dolphin.

Stakeholders identified several actions individuals and communities could take to protect the Māui dolphin, including looking after their land, reporting Māui dolphin sightings to DOC, videotaping the Māui dolphin, joining effective and impactful organizations that contribute to Māui dolphin conservation, and taking action against the government.

The team summarized the actions stakeholders identified for individuals and communities to take to protect the Māui dolphin, as well as the practical outcomes that could be achieved by implementing this action. The team also identified the possible challenges that might be encountered when trying to convince the public to implement the action. All of the suggested actions, practical outcomes and challenges to these suggested actions can be found below in Table 3.

Suggested Actions	Practical Outcomes	Challenges
Proper Land Use	Decrease Runoff and Pollution to Improve Water Quality	Expensive, Difficult to Implement, Require Action from All Land Users on the West Coast
Report More Sightings	Better Estimates from DOC of Māui Dolphin Range	Spreading Public Awareness About Importance and How to Report Sightings
Take and Share Photos and Videos of the Dolphin	Spread Awareness and Validate Sightings	Rare to See a Māui Dolphin, Difficult to Get Clear Photos, May Not Have Camera on Them
Join/Donate to Māui Dolphin Conservation NGOs	Increase Community Involvement in Conservation Efforts, More Resources for Awareness Campaigns	Time Commitment, Money, Public Not Aware of NGOs to Join
Take Action Against Government	Push for Further Protective Regulations	Māui Dolphin May Not be Biggest Political Concern, Lack of Will, Risks Involved
Be Aware of Where Your Fish Comes From	Avoid Supporting Fishermen Who Use Netting	Hard to Know Where the Fish Comes From
Share Information With Friends and Family	Spread Awareness, Educate, Inspire Others to Take Action	Lack of Personal Interest, Lack of Knowledge

Table 3 Actions for Individuals and Communities

The first action identified for the public was to implement proper land use. This means that landowners need to be aware of what runs off their land and into the waterways. This runoff can originate from many sources such as fertilizer, or cat litter. By implementing this action, the stakeholders hope the water quality will improve for the Māui dolphin, giving it a better chance of survival. It will be challenging to implement this because fencing lands to prevent runoff can be expensive and difficult. In order to be effective, it will also require action from all landowners on the west coast and it may be difficult to get such a large amount of people involved.

Another way that the public can positively contribute to Māui dolphin conservation, as suggested by Graham, is for people to report sightings as this will positively contribute to DOC's research on the Māui dolphin. Graham indicated that people see the Māui dolphin

more than DOC's sightings records indicate. This correlates to our research in which we found DOC needs more public sightings of the Māui dolphin in order to determine its full range. Also, as determined by the WPI students who worked on public awareness of the Māui dolphin last year, only 5% of the public can correctly identify and report a Māui dolphin sighting. There will be challenges implementing this action however, as awareness of how to report a sighting and its importance will need to spread to all ocean users of the west coast of the North Island.

Another suggestion for the public is to take and share photos and videos of the Māui dolphin. Taking photos of the Māui dolphin is an essential component to the validation process of reported sightings. If people take pictures of the dolphin when reporting sightings, it makes it easier for DOC to validate the sighting because there is actual evidence of the sighting. Sharing photos and videos of the dolphin will also raise awareness, as it will allow people to see the dolphin and its playful nature firsthand, and hopefully inspire people to save it. It may be difficult to collect more photos and videos since it is rare to see a Māui dolphin and it is difficult to take clear pictures from a moving boat. It may also be difficult to collect photos as people may not have a camera on them when they see the dolphin due to the fact that they are on the water.

The interviewees also indicated that giving money to NGOs and volunteering for these organizations is very beneficial and can really help Māui dolphin conservation efforts. This contribution would lead to greater community involvement for the Māui dolphin as well as providing NGOs with additional resources to put toward awareness campaigns. There will be challenges however because this will require either time or monetary commitments, and people may want to use their time and money elsewhere. Another challenge is that the public may not be aware of which NGOs they can contribute to in their local area, so they cannot join them.

Stakeholders also emphasized that people who are not happy with the current protective measures put in place by the government should engage in direct action to push for more regulations. Phil would like to see people signing an online petition, writing letters and sending them to the Ministers for the Environment and for Conservation, telling

them that they are not doing enough to protect the Māui dolphin habitat. Malibu believes the public should take more aggressive action by engaging in direct protest. He wants people to stand outside government buildings to stop employees from entering in order to gain attention from the government and media and to encourage government action to be taken to further help the species. Malibu indicated that protests have occurred in Raglan before and that the protests had been successful in getting onto the national news. It will be difficult to convince the public to take actions against government, as the Māui dolphin may not be their highest political priority. People also may not want to engage in direct protests due to risks involved such as getting arrested.

Christine indicated that people should practice non-consumption and be aware of where the fish they buy comes from and what is being caught. This means being aware of the practices the fishermen use when they catch the fish such as using set nets or trawl nets and not eating fish caught with these methods. By not buying fish caught using set nets, the public will not be supporting these fishermen and will create a disincentive to use these fishing practices. This is a challenging task however, as it is difficult for people to find out where their fish comes from and many people just want to get their fish and chips without investigating its source.

The last recommendation the stakeholders had for the public was to talk to their families and friends and spread the message about the need to help the Māui dolphin. Word of mouth and communication between friends is sometimes more effective than DOC putting out materials because these materials are only beneficial if people are actually noticing them. Undertaking this action will spread awareness and inspire others to take action. It will be challenging however to use word of mouth to spread awareness as people may not have enough knowledge about the dolphin to share and they may not be interested enough to talk about it with their friends and family.

Overall, it was evident that the stakeholders saw the importance of public involvement. As Rick stated, “all the people who live along the West Coast are responsible for looking after the Māui dolphin. Not John Key [Prime Minister of New Zealand], not legislations. It’s human induced activity. It’s our decisions, how we set our nets, what we

pour down the sinks, how we behave” (R. Thorpe, personal communication, January 30, 2015). This quote suggests people need to be responsible for taking action and not just rely on the government to enact change. He says that people need to use their own personal skills and abilities to save the Māui dolphin.

4.3.2 Interviewee Suggested Actions for DOC

DOC has a large role in Māui dolphin conservation. They are responsible for proposing Threat Management Plans to protect the species, as well as publishing awareness material to protect the species through public involvement. They are also responsible for balancing the needs of all the stakeholders including local activists, industry and the local Māori. The Māui dolphin conservation stakeholders identified actions they felt DOC needed to take in order to protect the Māui dolphin. These actions included advocating for stronger government protections, partnering with more groups and organizations, encouraging more reported sightings and videos, increase the connection with Māori, and putting out more positive messaging to encourage awareness of the dolphin. The team organized the actions for DOC to take to positively contribute to Māui dolphin conservation as suggested by the stakeholders into a chart along with practical outcomes from these actions and possible challenges. Table 4 shows the chart below.

Suggested Actions	Practical Outcomes	Challenges
Advocate for Stronger Government Protections	Full Protection of the Māui Dolphin Habitat, More Support	Politics, Influence
Partner with More Stakeholder Groups and Organizations	Be Able to Support More Initiatives Regarding Māui Dolphin Conservation, Work on a More Local Level, More Local Knowledge	Coordination, Communication, Time, Receptiveness of Some Stakeholders
Increase Connection with Māori	Incorporate Māori Ideas, Build Trust with Local Iwi	Mistrust, Communication, Cultural Differences
Encourage More Reported Sightings, Videos and Photos	Better Estimates of Māui Dolphin Range, Increase Public Awareness	Spreading Public Awareness About Importance and How to Report Sightings

Utilize Positive Messaging	Gain Public Interest	Not Much Māui Dolphin Footage, Distributing the Material
Research and Publish More Information on Māui Dolphin Threats	Alert the Public of the Biggest Threat so They Can Address it	Time, Some Topics Difficult to Research

Table 4 Suggested Actions for DOC

Stronger Government Protection

The interviewees would like DOC to push for additional government regulations to protect the Māui dolphin habitat as they believe the current regulations are not enough.

The first recommendation the interviewees had was to lobby for increased regulations to protect the Māui dolphins. The majority of interviewees wanted increased regulations from the government and felt that DOC should put more pressure on the ministers, but they differed on what regulations they wanted enacted. Phil, Rick, Malibu and Davis all wanted stronger restrictions on fishing, including banning net fishing in more areas where the dolphins might be living. Davis wanted to go even further and ban all fishing in the area where the Māui dolphins live. He wanted these restrictions in order to both protect the dolphins from getting caught in nets and to provide time for their food sources to recover. Rick also wanted to ban all net fishing and wanted the government to give commercial fishermen money to convert their boats to line fishing, or help them purchase fish traps within the Māui dolphin habitat. He believes this needs to be done to protect the dolphin and restore biodiversity. In addition to fishing, Phil also wants seabed mining and seismic surveying banned in order to protect the dolphin's environment.

Partnerships

The stakeholders identified a need for DOC to increase partnerships with local conservation groups and fishermen, but this may be difficult to implement due to the time and coordination required.

The interviewees had some additional suggestions that they believe will help DOC to positively contribute to the Māui dolphin population. The interviewees would like DOC to increase their work on partnerships with communities and organizations. They recognize that DOC has monetary limitations and would like DOC to work closer with other groups,

such as local NGOs or larger NGOs like WWF, in order to mitigate the issue of low government funding. By partnering with these NGOs, DOC can help to start more initiatives for Māui dolphin conservation such as the existing Māui Dolphin Day or WWFs education kits for schoolteachers. These collaborations would also allow work to be done on a local level, which is hard for a large organization like DOC to implement. There will be challenges collaborating with these organizations, as large amounts of coordination and communication will be required. It will also be time-consuming to establish connections with all the NGOs that contribute to Māui dolphin conservation.

Sheryl noted that DOC should work with fishermen more in order to incorporate their views and knowledge when making Threat Management Plans. Since the fishermen may see the dolphins, they may have better knowledge of their habitat, and by working with them, DOC can try to address their concerns about fishing restrictions. The fishermen currently contribute to Māui dolphin conservation through meetings with DOC about the Threat Management Plan (L. Boren, personal communication, February 13, 2015). However, it still may be beneficial for DOC to work with the fishermen on an individual basis, as fishermen may be able to relay their stories and ideas better in a smaller setting and may have insightful ideas for fishermen interaction with DOC that may be lost in a big group setting. Fishermen may also be emotional and defensive during these meetings since they are fighting against additional fishing bans. DOC may be able to gain useful knowledge from fishermen by working with them outside of policy reviews. It will be challenging working with fishermen, as they may not be responsive to helping an organization, such as DOC, who they believe is taking away their livelihood by implementing fishing bans.

Mistrust of DOC

There is a mistrust of DOC by some people since they are a government organization and are linked to the general government's inaction towards Māui dolphin conservation.

People associate the government policy surrounding Māui dolphin protection with DOC, and because there is disagreement and mistrust of the government policy, this leads

to mistrust of DOC. However, most interviewees who are highly involved in Māui dolphin conservation sympathize with DOC and believe that DOC is greatly underfunded.

Aaron would like DOC to do research and publish scientific studies on the threats that the Māui dolphin faces, as he does not believe that their Threat Management Plan accurately represents the current threats to the Māui dolphin. He believes that with stronger scientific evidence on the other threats, it will help shape people's understanding of why the dolphin is becoming extinct and stop people from continuing to accuse fishermen for the species' decline. Aaron is also skeptical that the current database of Māui dolphin sightings as reported by the public is inaccurate. If DOC were to publish additional scientific studies on the threats the Māui dolphin currently faces, it will help DOC better understand the threats to the Māui dolphin, and give stakeholders such as Aaron more confidence about the current Threat Management Plan. There are difficulties however since research can be very time consuming and it is difficult to study the effect of some threats to the Māui dolphin such as seismic surveying.

Local Māori along the west coast of the North Island believe DOC is not taking their views regarding the Māui dolphin into consideration which leads to mistrust between local Māori and DOC.

According to the Conservation Act of 1987, DOC is required to collaborate with Māori on conservation initiatives (Taiepa et al., 1997). Currently, there is a branch of DOC that works to integrate Māori theories and encourage cultural sensitivity so that DOC and Māori can more effectively collaborate. On a local scale, DOC attends hui, or meetings, with the Māori of the west coast several times each year to discuss the Māui dolphin. However, several stakeholders including Rick and Davis would like to see DOC involve Māori more when trying to protect species such as the Māui dolphin. They noted that DOC should utilize the Māori connection to their lands and conservation in general. Davis would also like DOC to do this by establishing a Māori branch within DOC that does not have any budgetary restrictions. His plan would differ from what DOC currently does, as he believes that the Māori branch should only employ Māori and promote Māori conservation methods

from within DOC. He notes that this branch would be able to lobby for money from Māori so they would not have to be totally government funded.

The mistrust of DOC and the government in general was clear from the fact that Davis has brought a court case to the Waitangi Tribunal regarding the Māui dolphin. This case stipulates that the Crown has not lived up to its treaty obligations by inadequately protecting the dolphin. As of February 2015, he is waiting for the case to be heard, and if the case fails, he has stated that he will bring his claims to the United Nations in order to force the government to take action. Davis is allowed to make this claim, as he is of Māori descent, and also kaitiaki (environmental caretaker) of his iwi. As kaitiaki, he makes sure the mauri, or life force, of the environment is maintained and managed.

The stakeholders would like DOC to remedy this mistrust from the public by incorporating Māori ideas and increasing the connection with local Māori. This may also benefit DOC and the Māui dolphin by providing DOC with new tools and ideas they haven't tried. However, it will be challenging to accomplish because currently there is mistrust between DOC and local iwi, which will make this connection harder to establish. There are also many cultural differences between Western science and Māori methods to addressing conservation problems, which DOC will have to work through if they were to implement this collaboration. In particular, mātauranga Māori is difficult to understand by Pākehā (non-Māori) due to its complexity and culturally embedded nature. This knowledge system also is difficult to access since much of this knowledge has been passed down orally for many generations and not written down (Wehi et al., 2009). DOC has struggled to effectively co-manage conservation initiatives with local Māori due to the lack of understanding of how to properly integrate mātauranga Māori. After further research on effective co-management strategies with Māori, we found that the best approach is to recognize and embrace these cultural differences. By recognizing the mana (the authority or control) of each iwi's specific lands, establishing rangitiratanga (Māori governance) structures, and recognizing each specific iwi's kaitiaki, more trust will be built with iwi which will help to mitigate much of this proposed mistrust (Taiepa et al., 1997)

Lack of Reported Sightings

People see the Māui dolphin more often than what DOC's sighting records indicate, but do not report due to a lack of awareness on the importance of reporting sightings.

Throughout the interviews, we also found that some of the interviewees believe that DOC could do more to encourage reported sightings of the Māui dolphin. Graham and Sheryl both noted that they saw the dolphins often, and that other fishermen and surfers did as well. Graham noted that some people are not aware that they should report sightings to DOC and encouraged DOC to increase signage on beaches and docks. He also believes that DOC should leverage technology to collect photos and videos of the dolphin. This footage could be useful to DOC both for scientific research as well as to use in awareness material. DOC will face challenges when trying to increase reported sightings as they will need to increase awareness that reporting sightings is essential.

Positive Messaging

Positive awareness material is an effective method of promoting Māui dolphin conservation, as it will interest more people as opposed to a grim message about the Māui dolphin's critically endangered state.

The last interviewee recommendation for DOC was to put out more awareness material, but give it a positive spin. They suggest that people will be more interested if it focuses on how playful and fun the animals are rather than their grim, critically endangered state. This positive messaging, they believe, will help to change the perspective about the Māui dolphins. Graham in particular felt that DOC needs to allow people to enjoy and celebrate the Māui dolphins. This goal also matches the theme of Raglan's highly successful Māui Dolphin Day, which aims to celebrate the animal while promoting conservation. Creating positive awareness material is challenging however as there are not many high quality pictures and videos of the Māui dolphin to use. It is also a challenge to determine where to distribute awareness material so that it is seen by the public.

4.3.3 Surfing Connection

Although not all surfers are heavily connected to the environment and the Māui dolphin, the surfing community has the influence to spread the word about the importance of Māui dolphin sightings amongst each other.

Raglan is very well known within New Zealand for its quality of surfing. It is a destination for surfers around the country, both novices and experts. The town is home to several surfing schools for beginners, as well as the Raglan Surf Academy. The Raglan Surf Academy is a section of the Raglan Area School that attracts surfers from around that country who want to become better. While many people travel there to go surfing, surfing is also very popular among the locals and a large portion of the community surfs (D. Hart, personal communication, February 11 2015).

The purpose of talking to surfers was to gain insight on ways that the surfing community can contribute to Māui dolphin conservation, mainly by reporting sightings. Surfers have an important role in Māui dolphin sighting, because they have a higher probability than most individuals of spotting a dolphin, especially in areas such as Raglan. From our key stakeholder interviews, the team was led to believe that surfers are very environmentally aware and connected to the water, more so than others who do not surf. We have learned that this connection cannot be generalized since it depends on the individual surfer and their reasons for surfing.

From our interviews with surfers, we have learned that not all surfers have the connection to the environment and marine mammals that the key stakeholders initially described. There certainly is a group of surfers who have a strong tie to the water and nature, but it is not present in all surfers and cannot be generalized as such. This connection with the marine environment is based on the surfer's personal values and the connection between some surfers and Māui dolphins is a rare occurrence.

An important aspect of surfer involvement in Māui dolphin conservation is their ability to report sightings. As previously mentioned, some surfers have spotted Māui dolphins and didn't know it was expected to report them and the importance of these sightings to DOC's studies of the Māui dolphin habitat. Some surfers have never seen signs

that inform how to identify and report a Māui dolphin, even though they are present in some areas. One surfer thought that a great way to inform surfers of the importance of sightings would be to include signs in highly populated surfing areas, such as Manu Bay in Raglan. Other surfers have only seen stickers about how to sight a Māui dolphin, but didn't recall what number to call. Andrew Swinton, a Raglan surf instructor, believes that stickers are an effective, fun way to spread the word on the importance of Māui dolphin sightings and also stated that surfers love stickers and would want to use them. Deane believes that contacting surf and boat clubs and urging them to use stickers and spread awareness within their respective clubs will help instill the importance of reporting sightings in the members. This could help create a network of surfers all along the west coast who will report sightings and submit videos of the Māui dolphin. Andrew also brought up the fact that Raglan is a world-famous surfing town, and informing backpackers of this importance along the West Coast where many tourists visit would be beneficial.

The surfing community is a strong network of people that could collaborate together to encourage reporting sightings of the Māui dolphin. Although it cannot be generalized that all surfers are connected to the marine environment, they have a greater chance of seeing the dolphin. Due to this fact, they have the potential to send in more sightings which ultimately help DOC and their research of the Māui dolphin habitat.

4.4 Findings for Objective 3: Mātauranga Māori and Conservation Education

There is a strong cultural connection to the Māui dolphin throughout New Zealand as the Māui dolphin is an endemic species. Māori, have a strong connection to the Māui dolphin due to their ancestral ties and connections to the environment. Mātauranga Māori, the indigenous learning system, is an important concept to involve in Māui dolphin conservation efforts as it involves a strong connection to the local environment through Māori knowledge. Current conservation education efforts are also important to analyze as children are an important part of society who need to be informed of the plight of the Māui dolphin. They are also part of a longer term strategy to ensure continued interest in conservation in the future. By incorporating the cultural connection to the Māui dolphin, as well as involving children in conservation efforts for the Māui dolphin, the public can

become more aware of conservation efforts and be more invested in saving this critically endangered species in the short term.

4.4.1 Connections to Culture

The cultural connection with the Māui dolphin is an important concept to understand as it can help drive conservation efforts forward.

General New Zealand Cultural Connection

New Zealanders along the west coast have a cultural connection to the dolphin because of first-hand, personal experiences with the dolphin and awareness campaigns that have strengthened this connection.

One interviewee not of Māori descent told us “people are warm and fuzzy about dolphins.” (S. Hart, personal communication, January 29, 2015). This captured the general notion that dolphins are fascinating species of animal that are intuitively connected to mankind. New Zealand has a very extensive coastline, with many people living close to the sea, and thus many people have a cultural tie to the ocean and all the various species within the marine ecosystem. Ocean users along the west coast of the North Island have a greater chance of seeing the Māui dolphin when they are out on the water. Seeing these dolphins first-hand allows people to connect further with the dolphin because the experience is real and tangible. One of the major issues surrounding Māui dolphin conservation is the fact that most New Zealanders who do not live on the west coast of the North Island have never encountered a Māui dolphin. This makes it much more difficult to get individuals involved with its conservation because they cannot relate the dolphin to their own personal experiences.

Awareness campaigns of the Māui dolphin have greatly contributed to the cultural connection with the Māui dolphin. Phil argues this cultural connection with the Māui dolphin has grown over the past ten years due to the existence of awareness campaigns, such as Māui Dolphin Day, that have been advocating for the need to protect the dolphin. Aaron agrees with Phil’s claim by stating that awareness is the main reason behind why there is a connection to the Māui dolphin. Aaron believes that the only reason there is a cultural connection is because of the many different awareness campaigns that have been implemented over the years. Christine further added to this argument by stating that the

dolphin connects to New Zealand culture due to the fact that people have been fighting to save them for so long. Several awareness campaigns through NGO's were created due to the plight of the Māui dolphin and their marine ecosystem such as Kiwis Against Seabed Mining (KASM). All of this effort and dedication these people have put into trying to save the species has led to a larger cultural connection to this species and a desire to save them.

Local Māori Cultural Connection

Local Māori, along the west coast of the North Island, have a strong cultural and spiritual connection to the dolphin that is embedded within their learning system, mātauranga Māori, due to iwi ancestry and environmental stewardship.

Māori along the west coast were aware of the existence of the Māui dolphin subspecies, which they call the popoto, long before it was confirmed by DOC with genetic testing. This suggests that Māori have been able to distinguish the very minute differences between Hector's and Māui dolphins and came to the conclusion that the Māui dolphin is a subspecies. This claim is embedded in the Māori learning system, mātauranga Māori, which suggests learning by making intricate observations of the surrounding environment as previously mentioned in our background chapter.

Davis Apiti discussed his iwi's spiritual connection to the Māui dolphin. His iwi, Ngāti Te Wehi, was led to New Zealand by this marine species, a story that has been embedded within his culture and has been passed down for many generations. This iwi sees the Māui dolphin as a taonga, or treasure, of the sea since it an intricate part of their ancestral ties, also called whakapapa. Whakapapa is what connects the Māori deeply with the environment, as it is the notion that relates all life to the Māori gods that created Earth (Barriball, 2014). Ancestral ties are what help keep iwi traditions and culture alive. When Māori introduce themselves, they make connections to where they are from to address their genealogy. They often look towards their ancestors for guidance and support and are very proud of their whakapapa. Therefore, since the dolphin ultimately ties with this iwi's ancestry, the dolphin is very significant to this iwi. They have a great sense of gratitude and respect towards this species and a deep desire and responsibility to save this species due to these ancestral ties. This responsibility, or kaitiakitanga, to protect the Māui dolphin is one of the main concepts of mātauranga Māori. Kaitiakitanga is defined as the responsibility of

actively caring for the environment (Barriball, 2014). Therefore, practicing kaitiakitanga means actively taking any actions that will help protect the Māui dolphin because according to this concept its mankind's responsibility to conserve the environment. If the dolphin did become extinct, it would be seen as tragedy to Davis's iwi since it would lose a large part of their cultural identity and a part of their genealogy, or whakapapa.

Malibu Hamilton, as a person of Māori descent, also explained his personal, spiritual connection to the dolphin. During the interview, he stated "They [the Māui dolphins] are us, and we are them. When they hurt, we hurt" (M. Hamilton, personal communication, January 29, 2015). When the health of the ecosystem, or mauri, is degraded, the local Māori lose a part of their spiritual connection to the environment. According to mātauranga Māori, every living thing is part of a larger entity, which is portrayed in Malibu's statement: "Tangata whenua's view is that we are one, we are part of the eco, living system. It is a living system that we are all connected to. And we are like blood veins running through each other." (M. Hamilton, personal communication, January 29, 2015). This statement demonstrates the very holistic approach of mātauranga Māori since everything within the ecosystem is connected and directly affects one another. Malibu further explained concepts of mātauranga Māori by stating his opinion: "Humans are the last-born and they [the Māui dolphins] are our tuakana [elder] species. They are a higher species than us. So as the indigenous tangata whenua, we are compelled to actually protect our elder species every day, for eternity. That's our past. To respect our elder species. And that's how we're connected." (M. Hamilton, personal communication, January 29, 2015). This means that humans are obligated and have a sense of responsibility, an aspect of kaitiakitanga, to protect this elder species since the dolphin is a part of their ancestry, or whakapapa.

The Māori interviewees suggested that Māori tools and knowledge, which are aspects of mātauranga Māori, should be implemented in order to save the dolphin. Davis claims that Māori knowledge should be used since it is just as effective, if not more effective, than Western science methods. Davis Apiti stated "The first 500 years, when [Māori] landed in New Zealand, was [about] conservation. They learned everything. It was all about conservation. It was about the plants. It was about everything that they needed to learn. So they had a good system going Māori did, it sustained them for that period, a thousand generations, it sustained them." (D. Apiti, personal communication, January 30,

2015). A major component of mātauranga Māori is learning through intricate observations of the environment.

One Māori tool Davis mentioned that should be used more for conservation efforts is rāhui, or restriction. Through our own research, we found that a rāhui is a temporary restriction of human access to a certain area of land or waterway to allow the environment to recover naturally (Best, 1982). Davis believes a rāhui should be put in place along the west coast to allow the Māui dolphin to recover naturally and prevent any further human induced deaths. This is similar to what other organizations like WWF are calling for to protect this species since they want a complete Marine Mammal Sanctuary (Palka, 2013). One of the provisions of the Fisheries Act of 1996 given the Ministry of Fisheries the authority to implement a rāhui to restrict a method of fishing, conserve fishing resources or because that specific area is considered tapu, or sacred (Ministry of Fisheries, 2014). The Minister must collaborate with Māori on the decision making process of implementing a rāhui since Māori have non-commercial fishing rights that are outlined in the Treaty of Waitangi (Ministry of Fisheries, 2014). Anybody can propose that the Ministry of Fisheries implements a rāhui but the Ministry must make sure that this restriction will help Māori with the management of their non-commercial fishing rights (Ministry of Fisheries, 2014). By implementing a rāhui, the government can use Māori tools to protect the dolphin and increase their relations with Māori.

The interviewees of Māori descent overall concluded that the concepts of mātauranga Māori have proven to be successful conservation tools and Māori views on conservation efforts should be taken into consideration when implementing protection measures of the Māui dolphin. Waitangi Tribunal cases in the past, such as Kaituna, Motonui and Manukau Harbor, have demonstrated that using the concepts of mātauranga Māori for conservation initiatives led to environmental improvements (Taiepa et al., 1997). Conservation requires a cross-scale approach where varying hierarchical conservation groups, especially local iwi, collaborate to help save New Zealand's endemic species (Berkes, 2004). Local iwi are considered the grass roots of this hierarchical conservation structure since they have very useful knowledge about the local environment and are therefore an essential component to the conservation of the Māui dolphin (Taiepa et al., 1997).

4.4.2 Mātauranga Māori in the Classroom

By interviewing teachers at the Raglan Area School and by observing a total Māori immersion classroom being taught about the Māui dolphin using mātauranga Māori, the team gained further insight into how mātauranga Māori is currently incorporated into the classroom and how it can be incorporated in conservation education about the Māui dolphin. The team aimed to use this insight to incorporate concepts of mātauranga Māori into a children's book, *Meet the Māui Dolphin*. The team also wanted to relay this important information back to DOC so that DOC can continue to work towards using these concepts in their outreach materials that target schoolchildren. The team observed the total Māori immersion classroom in the marae, or Māori meeting house, shown below in Figure 15.



Figure 15: Marae of the Raglan Area School

During our time at the Raglan Area School, the team gained insightful knowledge on how mātauranga Māori is used within real world practices. The Deputy Principal of the school explained mātauranga Māori by giving the team several real life examples. He stated mātauranga Māori is obtained by making careful observations of the local environment over many years which we were alerted to in our background research on mātauranga Māori. One example he gave the team was the use of harakeke, a fibrous green plant. He stated that Māori learned everything they could about this plant by observing it in its environment. Through these observations, they learned how to take its fibers and weave it

into many different useful objects and how to cut the plant without killing it or causing it to drown. Within the school itself, the students use knowledge that was passed down through many generations in order to weave many different types of bags and baskets out of the harakeke. He also gave the team another example by stating Māori realized what berries were not poisonous by observing what the birds and other animals would eat. These two examples demonstrate the deep connection mātauranga Māori has with the environment, since most of this knowledge that has been passed down for many generations was obtained through years of environmental observations. Practicing mātauranga Māori is important for children because it will help to keep this aspect of their culture alive for generations to come.

Kaitiakitanga

One major concept of mātauranga Māori that is incorporated throughout the Raglan Area School is kaitiakitanga to teach children to actively care for the environment and therefore can be used to teach children about the importance of protecting the Māui dolphin.

The entire Raglan Area School practices the concept of kaitiakitanga including the sections of the school that are not total Māori immersion. Kaitiakitanga is considered one of the core values of this enviroschool which teaches children to take responsibility of actively caring for their environment.

We saw this in operation in Kylie Hollis's classroom, who is one of the teachers in the total Māori immersion section of the school, who taught her class (class years three to four) about the Māui dolphin and why it is threatened. She then described why it is important for the children to care about the species and how the Māori guardian of the sea, Tongarua, gave the Māui dolphin as a gift to all of mankind and therefore they should be thankful and respect this treasure or gift. She reiterated the fact that Tongarua offers the children a place to swim and play and constantly gives to mankind and therefore it is people's responsibility to protect Tongarua, or the marine ecosystem. Throughout the lesson, she made many connections to kaitiakitanga by asking the students questions such as "why should they protect the dolphin?" and "what do they do to help protect the sea?" to get the main point across that it is their and mankind's responsibility to look after their

environment. After the students came to this realization, she had them go outside along the coast to pick up trash to take action to help preserve the marine environment and the Māui dolphin, a mix of education *in* the environment and education *for* the environment. The children were able to understand the importance of preserving this species as it tied back to the concept of kaitiakitanga, or responsibility. This short lesson about the Māui dolphin is very effective for children who are raised using mātauranga Māori but may not be as effective for other children who do not have a background in mātauranga Māori. However, it was important for the team to understand how mātauranga Māori is used in the classroom since it is one of our project's goals to acquire insight into mātauranga Māori.

One teacher explained his perspective on the mātauranga Māori concept of kaitiakitanga by stating "It's about getting the children to think in terms of their own actions and the impact of their actions on the ocean and on species, the planet" (A. Ngāpō, personal communication, February 19, 2015). This statement focuses mainly on the concept of kaitiakitanga to teach children about the importance of actively caring for the environment. He believes kaitiakitanga is done in the classroom by teaching children about energy usage, pollution and the importance of conserving the environment. He then does projects with the students to encourage them to actively care for the environment, such as looking at zero waste in lunchboxes and recycling.

We observed elements of kaitiakitanga throughout the entire enviroschool. The school contains flyers throughout the school that states they demonstrate kaitiakitanga by cleaning up classrooms before they leave them, respecting the environment by disposing of rubbish properly, recycling and reusing paper and other consumables and taking care of all the trees and other plants growing along the school grounds. A tangible example of kaitiakitanga is demonstrated in Figure 16 which has the word "kaitiakitanga" painted on the top of the wooden disposal bin to teach children to actively care for the environment.



Figure 16: Disposal bins that have the word kaitiakitanga painted on the top

Similarities to Western Science

Mātauranga Māori has many similarities to Western science and is just as powerful to help educate children about conservation and the importance of saving the Māui dolphin.

Mātauranga Māori ties in all three elements of conservation education since it teaches children to learn by making observations of their environment (education *about* the environment), encourages children to immerse themselves in the environment (education *in* the environment), and teaches children to actively care for the environment (education *for* the environment) also known as kaitiakitanga. Therefore, mātauranga Māori is similar to the Western Science approach of teaching children about conservation.

The school art teacher explained her understanding of mātauranga Māori by saying “it’s not something separate, it’s just part of the makeup of the classroom and the makeup of the people we are, and not anything different from what we do out on the beach.” (J. McDonnell-Rata, personal communication, February 17, 2015). She believes that mātauranga Māori is normalized in the school and is not very different or separate from other ways of learning or thinking, such as Western Science. In her opinion, mātauranga Māori is a part of an everyday normal practice within the school to have this deeper connection with the environment. Non-Māori students could be taught about mātauranga

Māori as long as the concepts are explained in a way that relates to their understanding. For example, kaitiakitanga can be taught by teaching the children about why they should have a sense of responsibility for taking care of the environment and protecting the Māui dolphin. Overall, several concepts of mātauranga Māori have been incorporated successfully into all of the Raglan Area School and has been very successful at promoting conservation.

4.4.3 Current Conservation Education

The Raglan Area School is a silver enviroschool in Raglan that has a large Māori influence. As a silver enviroschool, conservation education is integrated throughout classes at all grade levels. Some pictures of the school are included below in Figure 17, 18 and 19 below.



Figure 17 Raglan Area School Sign



Figure 18 The Main Office at the Raglan Area School



Figure 19 Silver Enviroschool Sign at the Raglan Area School

In order to understand how conservation education is currently taught, the team talked to teachers from this school. These teachers were asked questions about how they teach about conservation, the importance of teaching conservation, what methods they find the most effective to engage children and why they incorporate conservation into their curriculum. Since one of the team's deliverables is a children's book, the team also asked the teachers what they found effective in these books, and asked for their feedback on DOC's current books on endangered species.

Most Effective Methods

The most effective method to connect and resonate with children about conservation education is a practical, hands-on approach.

One of the most important questions that the team asked was *What methods do you believe are the most effective to connect and resonate with children in terms of conservation education?* The teachers believed a hands-on, practical approach was the best method to connect and resonate with children. Many of the teachers also mentioned that taking the children out into the environment, so they experience it firsthand, is very beneficial to their learning. The school's art teacher takes her students outside to inspire them for their artwork and believes that bringing them outside gives them ideas, makes the art real for them and connects the children with the environment. The school also implemented a program that involved planting, harvesting and using harakeke, a flax plant that Māori have been using for centuries to sustain themselves. This kind of education is consistent with our background research as education *in* the environment.

These hands-on activities seem to resonate with kids because they are able to interact with the environment and make discoveries for themselves. One teacher told us, "if you are in a classroom, watching videos about things, I think that the kids will get emotional and will attach to things but that is short lived, but if you are going out and doing something, even going out for an hour and picking up rubbish on our own peninsula, different things like that actually stay with them and they talk about it" (P. Maloney, personal communication, February 17 2015). This information is consistent with our

background research on education *for* the environment in which the children are taught to take direct action to conserve the environment.

Conservation Education through Art

Art is another effective method to teach about conservation and get the children involved in conservation issues.

Teachers found the arts to be an effective way to teach conservation and get children involved with conservation issues. We found several examples of this throughout the school, which included a Māui dolphin song that the children sang, and the school-wide project getting children to create origami Māui dolphins for an origami awareness project. As one teacher explained: “I suppose the most effective [method] would come down to perhaps using multiple intelligences, to some students you know, analyzing the data, that would be an effective way of learning, for others it is making models or designing songs” (L. Copson, personal communication, February 17 2015). This is consistent with our background research, including papers published by DOC, which suggested using the arts in order to create an emotional connection with the environment.

Art can also be used not only to raise awareness in children, but also to assist in conservation efforts. Christine gave an example of the effectiveness of art where she had children create artwork of the Māui dolphin which they then sold, raising several thousands of dollars for Māui dolphin conservation.

Necessary Conservation Education Materials

Teachers believe that DOC only needs to supply supplementary materials about the conservation of the Māui dolphin, opposed to entire lesson plan, because the teachers want to integrate conservation into their normal curriculum.

Most teachers indicated that they were satisfied with the previous material about the Māui dolphin produced by WWF, as discussed in our background chapter. One teacher suggested scientists should come into the classroom and discuss Māui dolphin conservation efforts, or have interactive activities that teachers could use on smart boards. The fact that the teachers believe DOC does not need to supply further materials indicates that teachers do not seem to rely heavily on outside materials to create their lessons. The

teachers want supplemental activities for specific lessons, but want to work conservation in general into their normal curriculum. Several teachers mentioned how they integrate the Māui dolphin as an example in their science lessons. An approach like this may be more effective because conservation becomes normalized. By normalizing conservation into the curriculum, this could inspire the students to look to their local environment and find local issues to address.

While it seems that teachers do not need entire lesson plans to help integrate conservation, it should be noted that the team only talked to a school where the teachers were already well versed in environmental issues. Other schools that don't already have an interest in conservation may find tips on integrating conservation helpful. In order to find this out, one would need to talk to teachers who do not teach conservation and ask them what materials would help them integrate conservation.

Motivations for Conservation Education

The main motivation for including conservation education in the classroom is teacher interest due to the fact that enviroschools have a flexible curriculum and therefore can choose what materials they would like to teach.

Another question the team asked the teachers was their motivation behind implementing conservation education programs in their classroom. Teacher interest was found to be the main motivation to implement conservation at this school. The teachers all indicated that they enjoyed teaching their students how and why to care for the environment telling us, for example, that “for me personally I have always been into conservation and that’s why I went to university in ecology, so I teach about it just so that the kids know what is going on.” (A. Prain, personal communication, February 18 2015). This indicates that teachers at the Raglan Area School are very invested in conservation, and teach it based on their motivations. Conserving the environment is a personal value to these teachers which they would like to impart on their students.

Raglan Area School is an enviroschool, meaning teachers are required to incorporate conservation into their classroom. Despite this, teachers overwhelmingly identified personal interest, not the requirement, as their reason for implementing

conservation education. The personal motivation of teachers to teach conservation means that they incorporate conservation into their whole curriculum, not just the specific lessons about conservation. This seems to indicate that if DOC wants to implement conservation education programs about the Māui dolphin, the most effective way will be to gain the teachers interest rather than make it a required part of the curriculum. The teacher interest in conservation seemed to influence the school to become an enviroschool rather than the other way around. This approach seemed to work well as all the teachers we spoke to seemed highly invested in conservation, and their interest carried over to their students, inspiring actions like their Māui dolphin song.

While we cannot make the claim that all teachers at the school have an interest in conservation, it seemed that the ones who did were very passionate and it is likely that their passion would carry over to other teachers and their students. It should also be noted that the team did not talk to any non-enviroschools which may have a differing perspective. Teachers who taught conservation in these schools may have different reasons for teaching conservation than the teachers at the enviroschool. Teacher interest seems to motivate conservation education programs, but it would be important to examine more schools in order to fully understand the motivations behind teaching conservation education.

Teachers also indicated that they had flexibility in their curriculum, especially in the younger grades, suggesting that interested teachers could easily create lesson plans focusing on the Māui dolphin. If DOC is able to interest teachers in the Māui dolphin, the teacher interest will carry over to their students and inspire action. It also suggests that teachers have considerable latitude about what they teach; in this regard teacher interest is vital.

Effectiveness of Children's Books

Books are an effective tool to teach children about conservation because they allow children to explore key facts and are a useful supplement to other teaching materials.

We wanted to know to what extent children's books are an effective method for teaching conservation. The teachers generally agreed that while it is best to get children

out into the environment, books are still an effective tool for teaching conservation and books are a good supplement to online resources. One teacher did not use books like DOC's current publications with her older students, but she used them with her own children all the time.

In addition to asking if books were useful, the team asked what formats were the most effective to use within those books. One teacher, who has published several children's books himself, felt that narratives were the best way to relate to children, but books with simple facts and illustrations such as DOC's current books are effective as well. When talking about an endangered species, he also stated that it is important to appeal to the human element of emotion but give hope at the end by telling the children how they can help. This concurs with our background research with the Easter Bilby where the children connected emotionally with the animal and wanted to help. It is also consistent with our findings that education *for* the environment is the most effective method to teach about conservation as it leaves the children with something to do that makes a difference.

5 Recommendations

5.1 Introduction

In this section, we discuss our recommendations on how to further increase public awareness of the Māui dolphin, as well as encourage public action to positively contribute to Māui dolphin conservation. We also include recommendations on how to engage children in conservation efforts by incorporating mātauranga Māori.

5.2 Collaboration on Māui Dolphin Conservation

We recommend that DOC liaise more with fishermen on the west coast of the North Island, both recreational and commercial, so that they may be further involved in Māui dolphin conservation.

During the Māui dolphin conservation stakeholder interviews, it became clear that fishermen are very important to Māui dolphin conservation. A further connection between fishermen and DOC can be established by creating a reporting system specifically for fishermen where they can speak to a specific DOC liaison for their area. This way, fishermen can report more general knowledge that may not be provided in a typical reported sighting of a dolphin, such as if they frequently see the dolphins in the same spot and any observed patterns of behavior. Many of the fishermen the team talked to indicated that they knew what type of environment the dolphin preferred to swim in, such as murky water, or that they repeatedly saw dolphins in the same area, so they did not feel the need to report it more than once.

One way DOC could establish this specific reporting system is by creating direct contacts, or fishermen liaisons, for the avid fishermen to talk to in regards to Māui dolphin sightings. If the fishermen call the DOC HOTline, DOC could direct these avid fishermen to the direct contacts by asking them if they are a fisherman who is frequently out on the water and sees the dolphin often. DOC could also include the contact information of these fishermen liaisons on awareness material that targets fishermen. By doing so, DOC can build a better relationship with the fishermen to report these patterns so they do not have to call and report a sighting every time they see a dolphin. Since these fishermen also know where the dolphins are, they can take DOC employees out on boats to see the dolphins and

collect genetic samples. By creating a connection between fishermen and DOC, DOC can use the fishermen's knowledge for further research on the Māui dolphin and further address fishermen's concerns about current fishing restrictions.

We recommend that DOC further liaise with local Māori along the Māui dolphin's range regarding Māui dolphin conservation efforts, so that Māori may express their concerns and recommendations to DOC.

The strong, spiritual connections the local Māori have with the Māui dolphin is the main reason why they are a key group that needs to be involved with the conservation of the Māui dolphin. Mātauranga Māori focuses very strongly on an environmental connection that contains generations of environmental knowledge. By liaising more with Māori, DOC may be able to better understand mātauranga Māori and be able to use it in their awareness materials. Currently, the team does not have a strong enough understanding of mātauranga Māori to recommend how DOC specifically may use all of the concepts in their awareness materials. However, we do recommend that they incorporate the use of te reo Māori in Māui dolphin awareness materials and incorporate the mātauranga Māori concept of kaitiakitanga, a sense of responsibility to protect the Māui dolphin.

Iwi partnerships are also essential because their spiritual connections to the dolphin can demonstrate to the rest of New Zealand the cultural importance of the dolphin and help drive conservation efforts forward. Although this connection is very specific to Māori, they were able to influence and inspire the team by displaying their cultural connection to the dolphin, so it may inspire others in New Zealand as well.

This collaboration can be enhanced if DOC seeks iwi's opinion on the Threat Management Plan rather than waiting for iwi to submit their comments on the plan, and assigns a DOC employee to be a liaison with different iwi within the range of the Māui dolphin habitat. This DOC employee can work directly with iwi to discuss current conservation efforts from DOC, and take recommendations from them on the Threat Management Plan for the Māui dolphin. This would allow Māori to have a specific method of submitting their thoughts and comments to DOC on the Threat Management plan, as well as allow DOC to learn from Māori knowledge and establish trust between them.

5.3 Increasing Public Awareness of the Māui Dolphin

We recommend that DOC provide quarterly updates via email, mail and/or its website on the status of its current conservation efforts of the Māui dolphin to all interested individuals and organizations.

Many of the people who are very involved with Māui dolphin conservation in their communities are unaware of DOC's current efforts towards Māui dolphin conservation, which is very frustrating for these people. By updating people on DOC's current efforts towards Māui dolphin conservation, these relationships with local, community driven NGOs as well as individuals may allow DOC to work closer with local stakeholders and communities to invoke positive action and gain information.

In order to mitigate this issue, DOC should create an outlet on their website for people to subscribe to that DOC will use to distribute electronic updates on Māui dolphin conservation. By creating an online subscription, only individuals who are interested in helping out and being informed will get this information. Thus, DOC will not have to reach out to various individuals and organizations to ask if they would like to be included in the newsletter about their current conservation efforts.

To help DOC distribute newsletters about the Māui dolphin, the team added to the contact list from last year's project on the Māui dolphin, which is included in Appendix H. One key group that was added to this contact list was surf clubs along the west coast of the North Island because this group has a greater chance of sighting a Māui dolphin and therefore increasing the amount of reported sightings. We also included one main contact for all of the enviroschools in New Zealand so that teachers within these schools can receive updates on the current status of the Māui dolphin and then integrate this information in their classrooms. The team also added various hostels, or backpackers, along the west coast so that they could inform their guests about the Māui dolphin and how to report sightings. Backpackers are a key group to target because they contain many tourists who are most likely not aware of the Māui dolphin and need to be informed about the importance of reporting sightings. Lastly, the team added various NGOs who are already working towards Māui dolphin conservation efforts and may greatly benefit from receiving updates from DOC.

We recommend that DOC and other NGOs distribute awareness material that contains a positive message about the Māui dolphin and contains evidence for the specific threats to the Māui dolphin population, both human-induced and non-human-induced.

The Māui dolphin conservation stakeholders believe there should be a positive spin on awareness messages to convey the enjoyment that the Māui dolphin brings to the west coast of the North Island. Some awareness material that is currently distributed focuses heavily on the threats the dolphin faces, how few of them are left and pictures of dead dolphins that were killed due to mostly human-induced threats. However, there is not much awareness material that does not contain these very grim messages about the dolphin. Positive messages could make individuals more apt to connect with the Māui dolphin and be interested in helping to protect it. The material should generate a similar feeling that is formed during Māui Dolphin Day, which gets the public excited about the Māui dolphin and it is more of a celebration than about the dolphin's plight.

In order to convey a positive message, interesting facts should be included in the awareness material while also following up on these facts by including action points that the public can take, such as the ones listed in section 5.4. These positive messages about the Māui dolphin can be spread through the use of media such as television and various social media. The use of media will help to engage a wider audience and further increase public awareness of the Māui dolphin.

By providing the public with current awareness material about the threats that the Māui dolphin faces, it may stop people from blaming others for the dolphins' demise and help to positively redirect their focus and efforts elsewhere. Additionally, if DOC wants to raise more public interest in saving the Māui dolphin they must provide awareness material on why the Māui dolphin is classified as a subspecies and the importance of protecting a subspecies. The team and many interviewees recognized that because the Māui dolphins are so similar to the Hector's dolphins, people may not care as much about its conservation. The people may wonder why they should care about this subspecies if there are thousands of dolphins similar to them on the South Island. By providing public

awareness material on the scientific differences between a Māui and Hector's dolphin, and why it is important to preserve the Māui population, people may be more willing to save this native species from extinction.

We recommend that DOC shares the team's educational video, entitled *Māui Dolphin: Treasure of the Sea*, they created on their website, at Māui Dolphin Day and other events for Māui dolphin conservation.

This video was created to further increase public awareness of the Māui dolphin and be used at various events that promote Māui dolphin conservation. The video is brief and concise so people are engaged throughout the duration of the video. This video is another form of awareness material for the public that may be more entertaining than reading about the Māui dolphin. The full description and script for this educational video can be found in Appendix G.

We recommend that DOC continues to increase signage on beaches and docks informing the public on how to report sightings of the Māui dolphin along the west coast of the North Island.

Since DOC relies heavily on accurate sighting reports to determine the Māui dolphin range, more individuals need to be informed about how to properly report sightings. Manu Bay in Raglan is an example of a high traffic location for surfers, boaters, fishermen and tourists that should include simpler and more effective signage to alert visitors who might not know about Māui dolphin sightings.

Although DOC is currently creating new signage for areas such as Manu Bay, they should keep messages simple and be sure to post the signs at every harbor on the west coast of the North Island if possible. DOC should continue to distribute signage with "Rounded Fin? Send it In!" since this is a very simple and catchy slogan that people will remember. Signage also needs to be continuously updated with accurate information about the dolphin in order to keep the general public aware of the current conditions of this critically endangered species. The larger distribution of signs along beaches, docks and locations throughout coastal communities will continue to spread the word about this dolphin.

We recommend that the Raglan community creates signs informing the public about the importance of the Māui dolphin to this area and that DOC supports this initiative if necessary.

Having signs within the Raglan community will help spread awareness of the Māui dolphin to visitors and locals, as well as associate Raglan with the Māui dolphin. A suggestion is to have a sign at the entrance to Raglan that reads, “Welcome to Raglan, Home of the Māui Dolphin,” with a picture of the Māui dolphin’s distinct rounded fin. Although DOC may not produce these signs themselves, they should still support the community in these efforts if possible. Recognition from DOC that Raglan is a key community that is vital to the conservation of this species is important since it will help DOC to gain more valuable partnerships within this crucial community.

5.4 Actions the Public can take to help protect the Māui Dolphin

We recommend that the public take and share videos and photos of Māui dolphins and for DOC to encourage this initiative by creating an area on their website where people can upload this footage.

Videos and photos are powerful marketing tools that can be used to help promote awareness of this critically endangered species. Often times, DOC and other organizations are hindered in creating awareness material that includes pictures of the Māui dolphin since there are very limited high quality photographs of this species. Most organizations have to resort to using pictures of the Hector’s dolphin instead.

A public photo uploading service on DOC’s website would provide an outlet for individuals to post and share photos and videos of the Māui dolphin. Not only can this help validate Māui dolphin sightings and provide photos for awareness material, but it can also allow people to view the Māui dolphin and their natural environment. Being able to watch a video or view a photo of a Māui dolphin makes it easier for an individual to connect with the species than if they had not seen the dolphin at all. By having an area on the DOC website dedicated for uploading Māui dolphin footage, it will increase the amount of photos and videos of the dolphin available for everyone to share and distribute. It should be noted

that DOC should have a filtering service before photos and videos are uploaded to ensure that only relevant material is shared.

In order to encourage the public to take photos and videos of the dolphin, the team updated the sign created by last year's WPI Māui dolphin group which initially said "Spot, Report, Confirm". The publishing team indicated that they did not like the action of "Confirm" because it is not an action the general public can complete. The team replaced this with the "Spot, Report, Share", in which the "Share" portion encourages people to share experiences with the Māui dolphin by informing friends and family and sharing pictures. This poster can be found in Appendix I.

We recommend that the public take actions to help the Māui dolphin and that DOC promotes these actions through media, posters, and children's programs.

The public can be involved in Māui Dolphin conservation in the following ways:

- Look after the land and live sustainably
- Recycle and dispose of rubbish properly
- Report sightings of Māui dolphins
- Videotape/photograph any sightings of the Māui dolphin and share it with others
- Join local NGOs who are working to protect the Māui dolphin
- Donate money to local NGOs
- Spread the word about Māui dolphins
- Write a letter to government/sign a petition if you feel that government action is necessary

These actions were also compiled into a poster to be used at Māui Dolphin Day in Raglan. This poster is an example of awareness material that may be distributed to the public, which provides a simple and concrete list of actions that people can complete to become more actively involved in Māui dolphin conservation efforts. Community support and actions can help to bolster regulations to protect the Māui dolphin and its habitat. This poster can be found in Appendix J.

5.5 Educating Children about the Māui Dolphin

We recommend that DOC encourage teachers to discuss Māui dolphin conservation in the classroom by distributing relevant supplementary lesson material.

The team recommends that DOC produces and distributes supplementary material that teachers can use for their lessons about Māui dolphin conservation. An example of this may be interactive activities for smart boards or interactive online activities for the children to complete. Additionally, DOC can provide teachers with the opportunity to have a DOC ranger go into the classroom and give a lesson on Māui dolphin conservation, similar to the programs completed by WWF. Another idea is that DOC's publishing team can create worksheets for the children to complete. These worksheets can include a picture of the Māui dolphin that the children can color in, accompanied by facts and questions about the Māui dolphin. DOC can spread the word about the Māui dolphin, and distribute supplementary lesson materials through the main enviroschool contact that the team provided in Appendix H. If this proves to be successful, the team suggests that DOC distributes the material to non-enviroschools using the New Zealand teacher journals. By providing and distributing this material, DOC can inspire teachers to inform their students about the Māui dolphin and further spread awareness.

We recommend that teachers incorporate kaitiakitanga and use a hands-on, practical approach to lessons about the Māui dolphin by interacting with and actively caring for their local environment.

Teachers should incorporate the concept of kaitiakitanga, also known as education for the environment, into their lesson plans when teaching children about conservation of endangered species, such as the Māui dolphin. By teaching children to be responsible for taking care of the environment, children will be more adamant about taking action to help save these endangered species. For example, teachers could incorporate kaitiakitanga by having children pick up rubbish along the beaches so that it does not end up in the Māui dolphin habitat. Teachers can also encourage their children to properly dispose of their rubbish as well as recycle.

Another hands-on practical lesson plan about the Māui dolphin would be to have students make artwork about the Māui dolphin. This artwork could include paintings of the dolphin or drawings of the threats it faces. This artwork could also include origami of the dolphin, similar to a program that Peggy Oki completed with the students at the Raglan Area School. The students could then sell that artwork at local community events such as Māui Dolphin Day in order to raise money for Māui dolphin NGOs. Teachers could also utilize the arts by having students compose and sing songs about the Māui dolphin, such as the one the students at Raglan Area School made.

We recommend that DOC publish and distribute the children’s book about the Māui dolphin, entitled *Meet the Māui Dolphin*, created by the team.

The team drafted a children’s book entitled *Meet the Māui Dolphin* to be added to DOC’s existing series of books on endangered species. The book features simple facts about the Māui dolphin such as where it lives, what it eats and its physical characteristics. The book also discusses the threats the Māui dolphin faces and ends on a call to action by reporting all sightings to DOC. In the “You Can Help” section of the children’s book the team employed the use of kaitiakitanga, which means responsibility of actively caring for the environment, a concept of mātauranga Māori. These facts are accompanied by photographs of the dolphin and illustrations drawn by children at the Raglan Area School. Additionally, the team plans to have our children’s book translated into te reo Māori to engage the Māori population. The team designed the book this way based on the previous books published by DOC, and the teacher’s positive feedback on them.

The team recommends that DOC completes this book and distributes it to schools. We recommend that this book is distributed to the schools for free as previous books have not gained much exposure as a book people can buy from a website. Since the purpose of the book is to inform readers, it is vital that it is distributed to as many people as possible. Charging money for the book will prevent widespread distribution as people will be hesitant to pay for a small book such as the one produced. In addition to schools, the book can also be distributed through communities through environment centers such as Whāingaroa Environment Centre in Raglan.

6 Reflections

As students coming from America, we didn't realize the importance and passion that surrounds the Māui dolphin. Working with DOC, visiting Raglan and attending the Raglan Area School has shed light on the serious issue that the declining Māui dolphin population has on West Coast communities on the North Island. We have heard many stories of why the Māui dolphin is so important to the people of Raglan and have been able to begin to understand the cultural significance of this rare, incredible species.

The Marine Species and Threats Team at DOC is a group of incredible and supportive people that we were privileged to work with. We thank them for this once in a lifetime opportunity to make a difference in Māui dolphin conservation and hope the relationships we have gained continue to grow. Laura Boren's efforts and guidance as a sponsor of this project has made this experience enjoyable and worthwhile to work on, even though it was challenging. We were also very grateful to have the assistance and support of Ian, Hannah, Lindsay, Will and the rest of the DOC team. They have truly made this experience life changing for us.

While interviewing in Raglan, we have created invaluable relationships with members of the Whāingaroa Environment Centre, June Penn and Danielle Hart. Their assistance and guidance through the interview process has not only been exceptionally helpful, but also very rewarding. Their aid and friendship throughout this project has been very appreciated and we were very fortunate to have them by our sides. We were also fortunate to have Jack de Thierry's support and assistance throughout our time in Raglan. His role in our project and genuine interest in the material being discussed during our interviews was vital for us to have, and we really value his time and encouragement.

We were truly surprised and astonished by the connection that individuals have with the Māui dolphin. During our preparatory course at school before we came to New Zealand, we only read about the Māui dolphin and mainly the facts surrounding its critical endangerment. Experiencing firsthand, the raw emotions and passion that the Māui dolphin brings New Zealanders was very rewarding and is not something that can be portrayed in an article read online. We are forever indebted to the people of Raglan who

welcomed us into their homes or came to the Whāingaroa Environment Centre and took the time out of their days to share their feelings. This experience is something that we will cherish for a lifetime.

Another once in a lifetime experience was being able to participate in a lesson in the complete Māori immersion class at the Raglan Area School. Seeing the children learn and answer questions about the Māui dolphin was remarkable, even though they were speaking te reo Māori. Although we could not understand what the children were saying, we understood their spiritual connection and how they wanted to help their treasure of the sea, the Māui dolphin, survive. After the lesson, we helped the children collect rubbish by the water, furthering their learning in their surrounding environment. We are very grateful to Tahi and all the teachers at the Raglan Area School for speaking with us and giving us another memorable experience that has broadened our minds about the Māui dolphin and New Zealand culture.

Upon our departure from New Zealand, our team will definitely bring home a new perspective based on what we've learned. Regarding conservation, we will know to tend to our own land and make sure we protect our own homes. We also hope to be more aware of our own endemic species that require attention and focus our efforts to conserving them as well. The Māui dolphin has become an inspiration for us and we hope our project has made an impact on its survival.

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Appendix A NGO's Involved with Māui Dolphin Conservation

NGO's Involved with Māui Dolphin Conservation	Location	Website
Whāingaroa Environment Centre	Raglan, NZ	http://whaingaroa.org.nz/
Kiwis Against Seabed Mining (KASM)	Raglan, NZ	http://kasm.org.nz/
World Wildlife Fund For Nature (WWF)	International	http://www.wwf.org.nz/
Māui's and Hector's Dolphin Education Action	Piha, NZ	http://nzdolphins.wix.com/nzdolphins
Animal Welfare Institute (AWI)	International	https://awionline.org/
Cetacean Society International	International	http://csiwhalesalive.org/
Environment And Conservation Organisations of Aotearoa New Zealand (ECO)	International	http://www.eco.org.nz/
Earthrace conservation	International	http://www.earthraceconservation.org/
Forest & Bird	Throughout NZ	http://www.forestandbird.org.nz/
Humane Society International	International	http://www.hsi.org/
Earth Island Institute	Berkeley, California (USA)	http://www.earthisland.org/
Great Whale Conservancy	International	http://www.greatwhaleconservancy.org/
GreenPeace	International	http://www.greenpeace.org/international/en/
Green Vegans	Seattle, Washington (USA)	http://www.greenvegans.org/
International Fund For Animal Welfare	International	http://www.ifaw.org/
Environmental Investigation Agency (EIA)	International	http://eia-international.org/
NABU International Foundation for Nature	International	http://www.nabu.de/en/themen/international/
Pacific Whale Foundation	International	http://www.pacificwhale.org/
Sea Shepherd	San Juan Island, Washington (USA)	http://www.seashepherd.org.nz/
Surfers For Cetaceans (S4C)	International	http://www.s4cglobal.org/
The Whaleman Foundation	Lahaina, Hawaii (USA)	http://whaleman.org/
Whale and Dolphin Conservation (WDC)	International	http://us.whales.org/
World Society for the Protection of Animals (WSPA)	International	http://www.worldanimalprotection.org/
Nantucket Marine Mammal Conservation Program	Nantucket, Massachusetts (USA)	http://www.nantucketmarinemammals.org/
Origami Whale Project	International	http://www.origamiwhalesproject.org/
Xtreme Waste	Raglan	http://xtremezerowaste.org.nz/

Appendix B Key Questions for Stakeholders

Introduction: Hi, we are students from Worcester Polytechnic Institute, which is a university located in Worcester, Massachusetts, USA. We are working on a social science project on Public Awareness of the Māui Dolphin, in which we are sponsored by the New Zealand Department of Conservation. I am Guy from Massachusetts, Jess, from New York, Lindsay from Massachusetts, and Lukas from Massachusetts. We [lead interviewers] will be leading the interview and we [the rest] will be taking notes. We will be asking questions centered around the Māui dolphin and your involvement with its conservation. Our hope is to raise awareness of and improve engagement in conservation actions for the Māui dolphin through finding ways for individuals and communities to get involved and producing an educational video. We also hope to videotape these interviews, which may be used in the educational video, but will only do so with your permission. If you feel comfortable with this would you mind signing a consent form that allows us to video tape you and use it in our educational video? If there are any times in which you would like to talk off camera just let us know and we can turn it off. Thanks!

How have you been involved in the past with the Māui dolphin and Māui dolphin conservation?

1) What do you understand as the current state of the Māui dolphin?

- What do you see as the biggest threats to the Māui dolphin?
- Are there any other threats to the Māui dolphin that you are aware of?
- What do you think is the largest obstacle to promoting conservation of the Māui dolphin in your community?

2) What does the Māui dolphin mean to you?

- In your opinion, how does the Māui dolphin connect to Māori and/or New Zealand culture?
- Why is it important to you and/or New Zealand to protect the Māui dolphin?
- How is the Māui dolphin important to your heritage?
- What do you think is important to teach children about the Māui dolphin?

3) What do you think should be done to protect the Māui Dolphin, outside of, or in addition to government policy changes, some examples may include codes of conduct, education, local guidelines etc.?

- What is your involvement in Māui dolphin conservation, if any?
- What are some things the general public can do to help protect the dolphin?
- How can/do you personally help the Māui dolphin?
- What would you tell people to do to help Māui dolphins?
- Are you aware of any current specific outreach programs concerning the Māui dolphin, if so what programs are you aware of?
- In what ways do you think current outreach about the Māui dolphin is lacking?
- What else do you think DOC can do to protect the Māui dolphin, besides government policy changes?

- What difficulties have you encountered working with other groups on the conservation of the Māui dolphin?
- Who do you see as the key people to involve in Māui dolphin conservation?
- How do you see mātauranga Māori being implemented into awareness material about the Māui dolphin?

4) Why is Raglan important in the conservation of the Māui dolphin?

- Who is involved in the conservation efforts in Raglan?
- What led to Raglan becoming a focus for Māui dolphin conservation?
- How has interest of Māui dolphin conservation been sustained in Raglan?
- What has been accomplished so far?
- What more would Māui dolphin conservationists in Raglan like to see done?
- Can these methods be implemented elsewhere, besides Raglan?

What do you see as your future role with the Māui dolphin and Māui dolphin conservation?

Appendix C Teacher Interview Questions

Introduction: Hi, we are students from Worcester Polytechnic Institute, which is a university located in Worcester, Massachusetts, USA. We are working on a social science project on Public Awareness of the Māui Dolphin, in which we are sponsored by the New Zealand Department of Conservation. I am Guy from Massachusetts, Jess, from New York, Lindsay from Massachusetts, and Lukas from Massachusetts. We [lead interviewers] will be leading the interview and we [the rest] will be taking notes. We will be asking questions centered around your classroom curriculum, conservation education efforts and the Māui dolphin. Our hope is to raise awareness of and improve engagement in conservation actions for the Māui dolphin through finding ways for individuals and communities to get involved and producing an educational video. We also hope to create a children's book about the Māui dolphin based on the information gained in this interview. We also hope to audio record these interviews for our own records, but will only do so with your permission. If you have any questions throughout the interview please let us know. Thanks!

1) In what ways do you teach about conservation in your classroom?

- What does conservation mean to you?
 - Do you think it is important to relay this to your students? Why?
- How much flexibility do you have in terms of making your own curriculum?
- How involved is the Raglan community in promoting conservation within the school system?
- What current conservation education programs do you have?
- If time, money and resources were not an issue, how would you implement conservation programs within your curriculum?
- In what ways is marine mammal conservation taught in your classroom?
- Do you have any current conservation material on the Māui dolphin? If yes, please describe it.

2) How important do you think it is to teach conservation to children?

- What methods do you believe are the most effective to connect and resonate with children?
- What methods do you find useful for conservation education? In class activities, field trips, experiments/demonstrations etc.?
- What materials do you see useful for general educational purposes? Books, handouts, movies, documentaries etc.?
- Do you feel that these programs are effective? Why/why not?
- What's your motive behind implementing conservation education programs within your classroom? Is this governmentally mandated? Are you told to do so by supervisors? Do you just personally want to do so?

3) In your view, how would you describe mātauranga Māori?

- What do you see as the commonalities and differences between mātauranga Māori and western science?
- As an educator, how do you incorporate aspects of mātauranga Māori in your classroom/science curriculum?
- What is the importance of mātauranga Māori to your overall curriculum?
- What is your motivation to include mātauranga Māori in your classroom?
- Do you have any personal experiences/connections to mātauranga Māori?

- How can mātauranga Māori be incorporated into conservation education programs specifically involving the Māui dolphin?

4) In what ways can children's books be an effective way to teach about endangered species?

- Have you heard of DOC's current books?
 - Are they used in your classroom?
 - Do children find them helpful and entertaining?
 - What do they do well, and what could be improved?
- What are some examples of books you find most effective?
- What techniques should the books employ?
- If no, why? What would be better?
- Would your students be able to illustrate for our Māui dolphin book?

5) How is surfing and the Māui dolphin connected in this community?

- Can you explain the surfing school that you have here?
- When people surf here, do they see the Māui dolphin? If so, how often?
- Do you teach the children about reporting sightings if they do see a Māui dolphin? If so, how?
- How important do you think this surfing school is to the children and the overall curriculum here?

6) Is there any way to promote Māui Dolphin Day in your classroom to encourage your students and their families to attend and get involved?

Appendix D Surfer Interview Questions

Introduction: Hi, we are students working on a project about public awareness of the Māui dolphin. Would you have a couple minutes to answer some questions for us? We would like to ask you questions about any experiences you have had with the Māui dolphin. We also hope to record these interviews for an educational video that we are creating, but will only do so with your permission. If you have any questions at all please let us know. Thanks!

1) Do you know how to identify/report a sighting of a Māui dolphin? If so, please explain how.

- What do you think would be the best method of communicating with surfers on how to properly report a Māui dolphin sighting?
- Do you think others know to report sightings/ Is it widely known in the community the importance, how to report etc.?

2) Why is the Māui dolphin important to Raglan?

- Why do you think that Raglan is so connected to the marine environment?
- How do you think this connection can be communicated to the rest of the country, especially other communities?

3) What is the surfer's connection to the Māui dolphin?

- What do you think the surfer's role can be spreading the word? (may sit better with one of the other questions)
- What does the Māui dolphin mean to you?

4) Have you ever seen a Māui dolphin, if so could you explain that experience to us?

- Do you hear about other people seeing the Māui dolphin? How often?

5) We compiling a contact list for our sponsor, DOC, so that they can implement Māui dolphin awareness programs. This could include newsletters on Māui dolphin conservation work and other information on how to report sightings. Do you know of any surf clubs along the coast that may wish to be included in this contact list?

Appendix E Project Timeline

ID	Task Name	Start	Finish	Duration	Jan 2015		Feb 2015				
					1/18	1/25	2/1	2/8	2/15	2/22	3/1
1	Present Proposal to DDC	1/15/2015	1/15/2015	1d							
2	Formulate Interview plan	1/16/2015	1/28/2015	9d							
3	Interviews with key stakeholders	1/29/2015	2/19/2015	16 d							
4	Analyze data from stakeholder interviews	1/30/2015	2/20/2015	16 d							
5	Filming for Awareness Video	1/29/2015	2/19/2015	16 d							
6	Formulate Teacher Interview Plan	2/9/2015	2/16/2015	6d							
7	Teacher/Surfer Interviews	2/16/2015	2/20/2015	5d							
8	Analyze teacher/surfer interviews	2/16/2015	2/20/2015	5d							
9	Draft Children's Book	2/2/2015	2/27/2015	20 d							
10	Produce Video	2/2/2015	2/27/2015	20 d							
11	Final Presentation/Report	2/23/2015	3/3/2015	7d							

Appendix F Consent Form

Video Release Form for

A Call for Action: Increasing Public Awareness of the Māui Dolphin

A project by:

Jessica Caccioppoli, Lindsay Gotts, Lukas Hunker and Guy Scuderi

Sponsored by:

The New Zealand Department of Conservation

OVERVIEW: A Call for Action: Increasing Public Awareness of the Māui Dolphin is a social science project that is being conducted by four students of Worcester Polytechnic Institute (Jessica Caccioppoli, Lindsay Gotts, Lukas Hunker and Guy Scuderi) located in Worcester Massachusetts, USA as a graduation requirement for completion of their bachelor's degree in various engineering disciplines. This project is sponsored by The New Zealand Department of Conservation and aims to raise awareness about the Māui dolphin and its critically endangered state by targeting children while also incorporating mātauranga Māori.

USAGE: A Call for Action: Increasing Public Awareness of the Māui Dolphin is a project that will incorporate the use of film/video as one of the final deliverables. The resulting product will be a film/video that may be used on internet web pages, stills for publication, promotional materials, distribution materials or other creative work that will be available to the public.

I, _____, hereby give Jessica Caccioppoli, Lindsay Gotts, Lukas Hunker, Guy Scuderi and The New Zealand Department of Conservation specific permission to publish, copyright, distribute and/or display images (motion and still) of my likeness created as part of the Public Awareness of the Māui Dolphin through Education and Mātauranga Māori project.

By signing below, I acknowledge that 1) I have read the above agreement carefully; 2) any questions I have about the use of my image have been answered satisfactorily; 3) any additional assurances or verbal qualifications that have been made to me have been added in writing to this document.

I understand and agree to the conditions outlined in this video image release form. I hereby allow Jessica Caccioppoli, Lindsay Gotts, Lukas Hunker, Guy Scuderi and The New Zealand Department of Conservation to use this recording and I give up any and all of my own future claims and rights to the use of this recording.

Participant's signature: _____

Date: _____

Filmmaker's Contact Info: If you have any further questions please contact any of the following students at their respective email addresses listed below:

Jessica Caccioppoli: jrcaccioppoli@wpi.edu

Lindsay Gotts: lggotts@wpi.edu

Lukas Hunker: lhunker@wpi.edu

Guy Scuderi: gjscuderi@wpi.edu

Appendix G Video Description and Script “Māui Dolphin: Treasure of the Sea”

The video the team created contains an overall positive message about the Māui dolphin, by including upbeat music and interesting facts about the dolphin. Some of these interesting facts include: it is the rarest and smallest dolphin in the world, is small enough to fit in a bathtub, it has a very unique, rounded dorsal fin and only weighs up to fifty kilograms. These interesting facts were used to help capture the viewer’s attention about this fascinating species of dolphin. After the dolphin is introduced, the story line of the video shifts to the fact that there are only fifty five Māui dolphins left due to human-induced and natural threats. This grim statement however then shifts back to an overall positive message by stating “However, despite humans being the most likely cause of their decline, the dolphins don’t seem to notice. Boaties often find the dolphins enjoying their wake, and surfers find themselves sharing a wave. Their charismatic, outgoing behavior continues to capture people’s hearts and nurture the longstanding connection between people and this coastal dolphin.” By continuing with the positive message of the dolphin, the team hoped to appeal to the viewer’s emotions and demonstrate the importance of this dolphin. This may cause the viewer to want to take action to help save the species.

The middle section of the video focuses on the importance of the community of Raglan in Māui dolphin conservation. By visiting Raglan and interviewing various individuals from this community, the team found that Raglan is very passionate about the Māui dolphin and is highly involved with its conservation. Therefore, the team wanted to portray the importance of this key community by including segments of an interview with members of the Whaingaroa Environment Centre, which is an NGO in Raglan that sponsors Māui Dolphin Day.

The last section of the video contains action points that individuals can take to help save the species. The video explains the importance of reporting sighting and how to report sightings correctly to DOC. The end of the video shows all the members of The Marine Species and Threats Team and our team shouting “Rounded Fin? Send It In!” to promote this catchy slogan that was created by last year’s project about the Māui dolphin. The team wanted to end on these important action points so that they will remember it. See the video script below for a full transcript.

Video Script:

“This is the Māui dolphin, the smallest and rarest dolphin in the world, unique only to New Zealand and to many it is a small treasure or taonga of the sea. They grow up to about 1.7 meters long and weigh up to 50 kilograms, which is small enough to fit in a bathtub. They are easily identified by their round dorsal fins and black, white and grey color. The Māui dolphin is nearly identical to the Hector’s dolphin and the differences between the two dolphins can only be distinguished by genetic testing. These dolphins can be found off of the west coast of the North Island while the Hector’s dolphin is usually found around the South Island. But with only about fifty five Māui dolphins left, they are a critically endangered species on the brink of extinction. In the past, set nets from fishing have contributed to Māui dolphin deaths as well as pollution and disease. However, despite humans being the most likely cause of their decline, the dolphins don’t seem to notice. Boaties often find the dolphins enjoying their wake, and surfers find themselves sharing a wave. Their charismatic, outgoing behavior continues to capture people’s hearts and nurture the longstanding connection

between people and this coastal dolphin. We need to help protect the Māui dolphin environment so that they may be around for a very long time to come.”

“As students coming from America, we didn’t understand the importance and passion that surrounds the Māui dolphin. After experiencing the small coastal community of Raglan, in the heart of the Māui dolphin range, we have come to realize the connection that people have with the Māui dolphin. This is what we found by talking to some members of the community who see the dolphin often.”

Videos of people talking

“So what can you do to help make a difference? The government needs to have a good understanding of where the dolphins live in order to protect them, so public sightings are essential. “You can help this endangered species by reporting any sighting of the Māui dolphin identified by its rounded fin. Send it in to DOC by calling the DOC HOTline at 0800 DOC HOT. You should take note of your location by identifying any important landmarks, and if possible your GPS coordinates. If you can, it would also be very helpful to take video or photographs of the dolphin to help verify the sighting. If you are unable to call, you can also submit a form online or by mail. For more information, please visit DOCs website or download WWFs Māui’s Dolphin app on your smartphone. With your help, the Māui dolphin population can thrive once again.”

Group of people: Rounded Fin? Send it in!

Ends with picture of poster or bumper sticker with DOC HOTline

Appendix H Updated Contact List

The following groups and organizations were contacted and can potentially be added to the contact list after approval from their councils:

Organization	Location	Phone	Email
<i>Surfing Clubs and Organizations</i>			
Keyhole Boardriders Club	Piha Beach, Auckland	N/A	nicktowna@hotmail.com
Kneeboard Surfing NZ	Opunake	067618136	weirdandm@xtra.co.nz
Lion Rock Boardriders	Piha Beach, Auckland	098128123	lionrockbdrs@xtra.co.nz
New Plymouth Surfriders Inc.	New Plymouth	067581489	mail@npsurf.co.nz
Opunake Boardriders Inc	Opunake	067618386	opunakeboardriders@gmail.com
Piha Boardriders Inc	Piha Beach, Auckland	021736676	thelouies@xtra.co.nz
Point Boardriders Club Inc	Raglan	078258044	Joe Gibbs: gibbsraglan@xtra.co.nz
Surfing Taranaki Inc.	New Plymouth	0276874122	mail@surfingtaranaki.org
Raglan Surfing School	Raglan	078257873	info@raglansurfschool.co.nz *e-mail didn't go through, left e-mail on website
Raglan Area School Surf Academy	Raglan	N/A	deane_hishon@raglanarea.school.nz
<i>Surf Lifesaving Clubs</i>			
communications@surflifesaving.org.nz			
Bethells Beach SLSP	Henderson, Auckland	098331968	compfamily@slingshot.co.nz

East End SLSC	Strandon, New Plymouth	067575598	eastendslsc@yahoo.com
Fitzroy SLSC	Fitzroy, New Plymouth	067586743	fitzroyslsc@xtra.co.nz
Karekare Surf Lifesaving Club	Karekare, Karekare	N/A	secretary@karekaresurfclub.org.nz
Kariaotahi SLSC	Waiuku	092358470	dawn.na@xtra.co.nz
Muriwai Lifeguard Service	Muriwai Beach, Waimauku	094118055	administrator@muriwaisurf.org.nz
New Plymouth Old Boys SLSC	Oakura Beach Front, Oakura	067527776	npobsurfclub@xtra.co.nz
Opunake SLSC	Opunake	067618779	opunakesurflifesaving@gmail.com
Piha SLSC	Piha, Auckland	098128896	info@pihaslsc.com
Raglan SLSC	Wainui Reserve, Raglan	078258573	raglansurflifesaving@gmail.com
Sunset Beach LS	Port Waikato	02329861	secretary@sunsetbeach.org.nz
United North Piha Lifeguard Service	Piha, Waitakere	098128706	secretary@unitednorthpiha.org.nz
Waitara SLSC	N/A	067526691	N/A
<i>Backpackers and Hostels</i>			
YHA Raglan (Solscape)	611 Wainui Road Raglan	+64 7 825 8268	raglan@yha.co.nz
YHA New Plymouth	33 Timandra Street New Plymouth	+64 6 759 0050	newplymouth@yha.co.nz
YHA Whanganui	2 Plymouth Street	+64 6 348 2301	Whanganui@yha.co.nz

	Wanganui		
YHA Auckland City	18 Liverpool Street	+64 9 309 2802	aucklandcity@yha.co.nz
Raglan Backpackers & Waterfront Lodge	6 Wi Neera Street	+64 7 825 0515	info@raglanbackpackers.co.nz
Raglan Kopua Holiday Park	Marine Parade, Te Kopua Domain, Raglan	+64 (7) 825 8283	stay@raglanholidaypark.co.nz
Sunflower Lodge	33 Timandra Street, New Plymouth, New Plymouth	06-759 0050	stay@sunflowerlodge.co.nz
Egmont Eco Lodge	12 Clawton Street, Westown, New Plymouth	06-753 5720	egmonteco@taranaki-bakpak.co.nz
Ariki Backpackers	25 Ariki Street, Taranaki	06-769 5020	stay@arikibackpackers.com
Ducks & Drakes Boutique Motel & Backpackers	45 Lemon Street New Plymouth	06 758 0404	info@ducksanddrakes.co.nz
Taranaki Accommodation Lodge	7 Romeo Street, Stratford	06 765-5444	info@mttaranakilodge.co.nz
Wheatly Downs Farmstay Backpacker	484 Ararata Road Hawera	06 278-6523	wheatlydowns@taranaki-bakpak.co.nz
Tamara Backpackers	24 Somme Parade	06 347-6300	info@tamaralodge.com


Lodge			
College House	42b Campbell Street Whanganui	021 852 100	info@42b.co.nz
Jandal Palace	38 Glenesk Rd RD2 Auckland West- Piha	09 812-8381	stay@pihabeachstay.co.nz
Surf Lodge 45	55 Tasman Street	+64 6 761 8345	realsmith@gmail.com
Whanganui Seaside Holiday Park	1A Rangiora Street	06 344 2227	info@wanganuiholiday.co.nz
Opunake Beach Kiwi Holiday Park	Beach Road Opunake	06 761 7525	opunakebeach@xtra.co.nz
<i>Non-Government Organizations</i>			
Whaingaroa Environment Centre (WEC)	Raglan	078250480	envirocentre@whaingaroa.org.nz
Kiwis Against Seabed Mining (KASM)	Raglan	027 294 3451	info@kasm.org.nz
Māui's and Hector's Dolphin Education Action	Piha	N/A	Māuisandhectorsdolphins@gmail.com
Greenpeace New Zealand	Auckland	09 630 6317	info@greenpeace.org.nz
Xtreme Waste	Raglan	07 825 6509	education@xtremezerowaste.org.nz
Earthrace			earthracenz@xtra.co.nz
<i>Enviro-schools</i>			
Anka Nieschmidt	Already agreed to be on contact list via email		anke.nieschmidt@enviroschools.org.nz

Appendix I Spot, Report, Share Poster

Rounded fin? Send it in!




Please report all Māui dolphin sightings

 **Spot**

Māui dolphins live in the shallow waters off the **west coast of the North Island**. They are most easily identified by their **small size** (1.7 m long) and by their **unique rounded dorsal fin**.

 **Report**

If you spot a Māui dolphin, **report it!**
By phone: **0800 DOC HOT**
or online: **www.doc.govt.nz/helpmaui**. If possible include location, group size, time, date and photos showing nearby landmarks.
All reported sightings are validated by DOC, then entered into the DOC sighting database, which can be accessed through the DOC website.

 **Share**

If possible **take videos and photos** of the Māui dolphin! **Share** this rare experience with DOC and your friends and family on the web to **raise awareness** of this critically endangered species.

 **WPI**

DOC HOTline
0800 362 468
Report any safety hazards
or conservation emergencies
For Fire and Search and Rescue Call 111

 **Department of Conservation**
Te Papa Atawhai
New Zealand Government

Appendix J Action Poster



How you can help Māui

Fisherman?

- Don't use set nets where restrictions are not in place but dolphins may be found
- Stay with your net – if you see dolphins, lift your net immediately

Boatie?

- Use a 'no wake' speed within 300 m of dolphins
- Don't swim with Māui dolphins or attempt to feed them

Cat lover?

- Don't dispose of cat litter or other animal faeces in toilets, drains or stormwater systems – this may contribute to the spread of the parasitic disease Toxoplasmosis to Māui dolphins

EVERYONE

- Recycle and don't litter – Māui may swallow or get entangled in rubbish
- Support community groups and NGOs that help Māui dolphins
- Get involved in government decision making – vote, write letters supporting Māui/marine conservation, stay informed, and submit on public consultations



Spread the word about Māui dolphins!

Report sightings of Māui dolphins to:

DOC HOTline
0800 362 468

Report any safety hazards or conservation emergencies
For Fire and Search and Rescue Call 111

Report illegal set nets in protected areas by contacting the Ministry for Primary Industries:

Tel 0800 4 POACHER (0800 4 76224)

Department of Conservation
Te Papa Atawhai

New Zealand Government

www.doc.govt.nz/helpmaui



Appendix K Master List of Key Themes

Themes from Māui Dolphin Conservation Stakeholder Interviews

- Largest threat to Māui dolphin
 - Human induced
 - Fishing
 - Trawling, set nets, decreased bio-abundance, 95 % of previous dolphin mortalities, dolphin drowning, devastation of biodiversity, wants line fishing, unsustainable commercial fishing, affects dolphin food supply, human ignorance about bio-abundance, dolphin indicator of health of west coast
 - not reporting sightings
 - dolphins are rare occurrence, hide in murky waters, lack of set net ban enforcement, need monitoring on fishing boats, rely heavily on public sightings, falsely reported sightings
 - Set net bands excessive
 - No dolphin caught since set net bans, no dolphin seen outside of set nets, fishing industries ruined, people losing their livelihood, still blaming fishermen, fishermen seen as scapegoat, need further scientific evidence
 - Land use
 - Run off from land, pollution, sewage,
 - Oil, cat litter (toxoplasma gondii), chemicals, plastics, rubbish, fertilizers
 - Human ignorance, not living sustainable, Raglan waterways polluted
 - Sea bed mining
 - If allowed to occur, destroys ecosystems, KASM formed, fighting major mining companies, will be end of dolphins
 - Off shore drilling
 - Disrupts and kills ecosystems, oil spills, large devastation if mistake
 - Seismic testing/surveys
 - Not proven, very controversial, sonic booms, food supply leaves, disrupts marine environment, done in Marine Mammal Sanctuary, sound waves have negative effect, sound travels farther underwater, needs further scientific studies
 - Inactivity of government
 - Not conservation minded, don't care about dolphin, not listening, need further regulations and restrictions, dolphin not major priority
 - Non-human-induced
 - Predators
 - Orcas

- Seen pods of them in Raglan, known to eat dolphins, swallow dolphins whole, no trace, hard to prove, dolphin may hide in murky water
 - Great whites
- Diseases
 - Toxoplasmosis
 - Cat feces in cat litter (toxoplasmosis gondii), parasite, run off into waterways, proven to cause dolphin fatalities, causes abortions, behavior changes, need further studies to determine how transmitted into marine ecosystem
- Largest Obstacle to Māui dolphin conservation
 - Dolphin's lack of economic value
 - World very money driven, greed, more regulations hindered, government sees no value in the dolphin, doesn't care to save them, costs the country money, disrupting growth economy, less fishing and mining means less money, saved black robin since no interference with economic activity
 - Inaction of government
 - Mentality of growth economy, exploitation of natural resources, wanting economic growth, not listening to petitions and letters, not listening to people, need to further lobby government, has led to creation of NGOs, dolphin not seen as major priority, most haven't seen dolphin, have ability to save dolphin
 - Politics
 - Not enough political support, people will pay taxes to save dolphin, government not conservation minded enough, elect government that cares, people have power to vote, vote for conservation minded politicians, controversial legislation, making policy changes takes time and resources
 - Lack of awareness/public interest
 - Ignorance of people, lack of care, not directly affected by decline, most New Zealand never seen dolphin,
 - importance of reporting sighting
 - falsely reported sightings, DOC relies heavily on sightings, helps determines Māui habitat
 - Don't know difference between common and Māui dolphin, need more awareness materials, larger distribution, awareness about rounded fin, conservation work already been done, rarity of dolphin leads to lack of awareness, use media to spread awareness
 - information about subspecies necessary
 - why people should care about subspecies, Hector's dolphin look exactly alike, Māui go extinct still have Hector's, awareness material about subspecies needed, teach public about subspecies
 - Difficult to take action
 - Hard to get support from public, marine species harder to save than land species, stems from lack of public awareness/interest, lack of will, don't know how to help out, blaming each other for dolphin plight
 - Difficult to address all major threats

- Need large investments, fishing industry easier to address since smaller group, land-use/pollution is everyone, lots of time money and effort needed, need further scientific studies, not one specific group to blame
- Significance of Raglan
 - Passionate about Māui dolphin conservation
 - Very conservation minded community, environmentally aware, successful planting and fencing program, others look towards Raglan, forerunner in conservation, in heart of Māui dolphin range, connected to dolphin because in their backyard, sense of responsibility to protect it, other people connect dolphin to Raglan
 - Artistic culture
 - Karioi-“House of the Arts”, view things from different perspective, artistic culture embedded in the town, many artists reside here, artists are open minded, artists environmentally aware
 - High Māori influence
 - Local Iwi ancestral ties to dolphin
 - Close-knit coastal community
 - Has own harbor, other towns don’t have own harbor, sense of ownership and responsibility of health of harbor, small community, everyone knows each other, model for others to look towards
 - Connected to ocean
 - Many people on water, aware of local marine ecosystem, surfers deeply connected to ocean
 - Many conservation groups
 - KASM formed here, WEC hosts Māui Dolphin Day, Xtreme Waste cleans up landfills, pushed for initial genetic testing of North Island Hector’s, pushed for original set net bans, instigators for Māui dolphin conservation
- Individual and Community Actions
 - Increase awareness
 - Spread the word/communication, talk to people about importance of reporting sightings, spread/distribute awareness materials, put up more signage, continue actions already being done
 - Living sustainable/ Be environmentally conscious
 - Recycle, clean up rubbish, look after lands, stop pollution, clean up waterway, practice non-consumption, clean up own environment, get rid of cats,
 - Report sightings/ Taking photos and videos of dolphin
 - Helps determine Māui habitat, photos and/or video spread word about dolphin, show dolphin in positive light
 - Not much more can be done
 - Push for more scientific studies, need proof of all threats and reasons for threats
 - Participate in NGO’s
 - Donate to NGOs, volunteer for conservation organizations, NGOs must join forces

- Lobby against government
 - advocate for conservation, vote for government that will protect dolphin, send in petitions and letters, direct affirmative action, protest
- Suggest Actions for DOC
 - Partnerships
 - Connect with Māori
 - Use Māori conservation knowledge, local iwi very passionate, mistrust of DOC and government, want stricter regulations, see dolphin as part of themselves
 - Involve fishermen
 - Fishermen know Māui dolphin range, incorporate their views when making Threat Management Plan, fishermen perspective important, been blamed too much for decline
 - Collaborate with more NGO's and communities
 - Work closer with WWF, perception that DOC doesn't have many partnerships, communication is necessary, small groups important partners, work together with MPI and other government organizations
 - Advocate for further protection
 - Want increased regulations
 - Convert to line fishing in harbor, ban all net fishing, ban seismic surveying and seabed mining, Waitangi tribunal case
 - Encourage sightings and photos/videos of dolphin
 - Push for more scientific studies, leverage technology
 - Continue to spread awareness
 - Update signage, distribute more awareness material, distribute awareness through TV and newspaper
 - Use positive messaging
 - Demonstrate importance of saving dolphin, celebrate the dolphin
- Dolphin's Connections to Culture
 - Depends on personal values
 - No connection since never seen one
 - Connection since advocating to save them
 - Awareness helped with connection
 - NGOs formed to help save them, Māui Dolphin Day helped connection, dedication to protection led to connection, part of people's everyday lives to save them
 - Dolphins friendly and playful, fascinating creatures, connect to humans because mammal, people love dolphins
 - Connected due to geographical location
 - Dolphin part of west coast's backyard, sense of ownership/responsibility, connected to ocean and therefore connected to dolphin
 - Local Māori strong spiritual connection
 - Connection embedded in mātauranga Māori

- Very environmentally aware, make careful environmental observations, Aware of subspecies before DOC, popotos, lived environmentally sustainable for many generations
- Dolphins are their ancestors
 - Stories of dolphin
 - Guided a specific iwi to New Zealand
 - Tuakana species, respect their elders, whakapapa since connected to their genealogy, sense of responsibility to protect them
- All of environment interconnected
 - Blood veins run through each other, if dolphin hurting Māori hurt, sense the degradation, deep connection to environment, very holistic approach
 - Familiarity with local environment, experts on environment
- Use of Māori tools
 - Rahui and tapu
 - Restriction of Māui habitat, allow recover naturally
 - Proven to work in past

Themes from Teacher Interviews

- Effective teaching methods
 - Currently
 - Argument writing, songs, games, role-play, inquiry learning, art demonstrations, relate locally, value of place, clean-ups, taking action, use of models, education in the environment, become part of environment, ownership, Māui dolphin day, branch of science, interweave, modularize, context based learning, practicality, monitoring, music, drama, multiple intelligences, field trips, waste management, local projects, inquiry project, hands-on, activities stick with them
 - Teacher led, students help
 - Help from outside
 - Outside educators, interactive electronic activates, summary website, books, work with activists, work from WWF
- Programs for Māui dolphin conservation
 - Science
 - WWF material, echolocation, causes of decline, food webs, biodiversity, comparisons, ecological niches, subspecies, scientific names, monitoring, looking at data, measure environment, break down food web, project ownership, look at fishing practices, effect of nets, effect of boats
 - Arts
 - Māui dolphin song, origami
- Motivations

- Requirements
 - Enviro-schools
 - Levels, advertising, get to gold, professional development, connect outside groups, distribution list
- Personal
 - University background, inform children, loss of motivation, protecting species, diversity, awareness, preserving environment, importance as surfer
- Flexibility
 - More in younger grades, follow student interest
- Mātauranga Māori
 - Kaitiakitanga
 - Reducing waste, Studying species, renewable energy, composting, gardening
 - Relationship to the environment
 - Children of atua, angering guardians, impact of actions, origin stories, origin of name, connection to land, take for granted, learn through observation, give it back to source
 - Focus locally
 - Māori arts
 - Recycled paper, harakeke, weaving, using plants, sustaining tradition, multiple uses, source locally
 - Normalize
 - Engrained in school, part of everyday life, holistic approach
 - Reciprocal learning
- Effective methods for children's books
 - Use of narrative, appeal to emotion, conflict, message of hope, facts & figures, inspire inquiry, interesting pictures, relate visually, definitions
 - Resource for teachers, hard copy
- Changes with age
 - Push to think about environment, reminders about conservation

Themes from Surfer Interviews

- Connections to Marine Environment
 - seeing ocean is normalized
 - seeing dolphin nothing special, not aware of reporting sightings, Raglan surfers don't see them often
 - care for the environment
 - immersed in water all day
 - Greater chance of seeing dolphin, dolphins surf waves with surfers, exposed to pollution more, pick up trash if see it, disgusted by pollution, spiritual thing with water, notice pollution more than others
 - Based on personal values
 - Some have strong tie, encounters help with connection to dolphin
 - Can't be generalized

- Selfish sport
 - Not very environmentally conscious, will drive hours to catch good waves (polluting), clean up rubbish because in their surf, not as connected as the past
 - Surfers are hobbyists
- Increase awareness of dolphin
 - More stickers, more signs on high traffic areas, reach out to surf clubs
 - Encourage reporting sightings
 - Be more environmentally aware
 - Buy environmentally friendly surf products

Appendix L Interview Transcripts

Interview #1: Sheryl Hart- Representing Recreational Fishing

January 29th, 2015 11:00am

Jess: What is your involvement with Māui dolphin conservation?

Sheryl: Well I came to Raglan in 1983 and we bought a boat. We've always been boating people forever. And we noticed these dolphins and there was lots of them and then there was not so many of them. So I started harassing DOC at the time and told them I was not seeing as many Hector's dolphins as I used to. I told him that they might like to get some biopsies done and take a look at the gene pool to see what the deal is. And from that we got Māui dolphins. So suddenly we went from endangered to highly endangered because we found a subspecies. So that was good for the dolphin because it meant now that the government had to act on the fact that there was not as many as they thought there were. Because DOCs answer back then was that they were just a few stragglers from the South Island because that is where the main Hector's dolphin pool is. Well that's not the case and that's how we got Māui dolphins. So that is how my involvement happened. From there, I pushed for the initial gill net bans but not the second ones. I pushed for the four nautical miles because I felt that was in the dolphin range but did not push for the seven nautical miles. I think the seven is excessive. We've never seen dolphins outside of four in fact never seen them outside of three and the people I represent, which is the recreational fishers, part of what we did right out the start was make a Māui dolphin sighting form and gave away free t-shirts to everyone that saw one and filled the forms in and they have never been seen outside of three nautical miles. And I think the seven is excessive. However, we've got the seven and the fishermen say thank you because it actually improved the fishery. So we were probably not happy about the seven since it was excessive but it has improved the fishery. However, it has not improved the dolphins from their plight. Because from the time the four nautical miles was implemented no Māui dolphins have been caught in gill nets. So there was another three and there has been no Māui dolphins caught in gill nets. And then there is the green aspect and I am green because I have a history there with dolphins. But the extreme green aspect say to you straight away that Māui dolphins get killed in gill nets. Alright, if there is a Māui dolphin in gill net territory there is a possibility of them getting killed. However, there are no dolphins in gill net territory now. If there is, it's illegal and the law needs to step in. But I believe that we are pretty free of them. I have not seen a gill net on a boat over here in a long, long time.

Guy: So what do you think is the largest obstacle to promoting conservation of the Māui dolphin in your community?

Sheryl: Land use

Guy: Land use, can you elaborate on that a little more.

Sheryl: Based off the deaths of the biopsies of the Māui dolphins that die, they are dying of diseases coming mainly from cats. That's where we need to look to conserve the species and that's land use. And that is not anyone really wants to seem to take a handle of it. And say that we are going to have to do something about the animals.

June: How are the cats affecting the dolphin?

Sheryl: They are the only animal that can put the toxoplasma gondii into the water way. But nobody is talking about it. It got published in the commercial seafood magazine and I sent it to many different individuals and it seems nobody wants to touch it. Let's get a mat and chuck everything underneath it and hide it. Meanwhile, we are dooming our species.

Jess: So what exactly does the Māui dolphin mean to you?

Sheryl: A lot. I hope I am well gone before that thing becomes extinct because it would make a very sad person. So yeah, it's a fantastic little animal.

Guy: Going off of that, how does the Māui dolphin connect to New Zealand culture in general?

Sheryl: People are warm and fuzzy about dolphins. Dolphins in general you know. We are a water based nation. I know in your country many people have never been to the sea and it's amazing. In New Zealand, we are water people and that's it. Some people need to see something first though before they become warm and fuzzy about it. I don't want to see ecotourism about the Māui dolphin because that would be the end of them. I just think New Zealand has an affinity with the sea and with that an affinity with the dolphins.

Jess: So you think it's important to teach children about conservation and the Māui dolphin?

Sheryl: Absolutely. But I don't want to see it about the set nets. Because the dolphin does not live in the set net area so you know set nets and dolphins are not happening. That sort of propaganda is what drove it from four to seven. And it was propaganda. It's not real. It's not where they live. So yeah I would like to see them taught about them and encourage ma and dad to not get a kitten and all of that. That's where we need to be, looking after the water making sure that everything that goes in the water does not end up in the sea. Be careful because that's what's going to kill the dolphins. That's what is killing the dolphins.

Guy: What else should be done to protect the Māui dolphin?

Sheryl: Land use. We need to really get on top of what is going into the water and cats.

Jess: Is there anything in particular you do at home to help out?

Sheryl: I don't have a cat. I have a dog but don't have a cat. The cat died and the cat did not get replaced. If the neighbor's cats visit, I let them know they are not welcome here. Yeah just people need to realize it.

Lukas: You talked a lot about the cats, but if someone came up to you on the street and said that they heard about the Māui dolphin and asked what they could do to tell, is that the main thing you would say or something more?

Sheryl: Yeah I would tell them to look after their land and get rid of their cats. It gets into the water and aborts baby Māui dolphins. You know we could look into farming practices and general run off from town land and city land and yeah.

Jess: Are you aware of any current outreach programs either in Raglan or just in general?

Sheryl: Not really no. I know about Māui dolphin Day but besides that no.

Lukas: Would you have any suggestions to any additional programs that could be implemented?

Sheryl: I would just like the government to take note that you know we need to look at the iwis. It may be a little difficult but yeah.

Guy: What else do you think DOC could do to help protect the Māui dolphin?

Sheryl: Cats and land use that's it. We have done fishing to death. It's finished. That's dealt with. It seems to be being hidden. One Guy has done some experimentation in Auckland. I've read it and it seems pretty plausible and pretty correct. The hiding of it has been so good and nobody has been prepared to peer review it or do anything. Let's deal with it you know and see if it's real or not.

Jess: So you have been saying the fishing issue has been beat to death but do you see any ways the fishermen can get more involved other than what has been done before?

Sheryl: I think you need to remain friends with the fishermen now because they are the people who see the dolphins in the water and they are the people who are reporting it. I know some of the biggest advocates for the Māui dolphin have never even seen one or know where to look for one. However, if you come into my house, I could take you out to see one today. I know where four are right now. Right so yeah. That's why the relationship with the fishermen has been that they feel a little ostracized because they feel like they've been getting blamed for everything that happens which is not the case. Like I said, there has not been a Māui dolphin death since the set net bans. Yes, there have been Hector's dolphin deaths down on the South Island but we've got a subspecies and that's where the propaganda happens. One dies down in Otago where there are hundreds and hundreds. One of dies and there is no big deal if there are many of them. It only matters when there is

only a few of them like the Māui dolphins. What was your question again? Sorry I got a bit off track.

Jess: The fishermen and how they can help out?

Sheryl: Oh yeah, DOC and MPI and other organizations need to start involving fishermen in the promotion of the Māui dolphins and start to you know do more sighting forms and t-shirt giveaways and monthly drawings. We need to get this sort of kind of happy feeling between everyone because it has not been like that for quite a while. That's sort of the general feeling you know yeah.

Lukas: In addition to fishermen, who else do you see as the key people to get involved in this issue and involved in raising awareness?

Sheryl: Government agencies since they are the ones with tax payer's money. So they are the ones with the power they can start pushing more. I know most of it revolves around volunteers but there comes a time when the volunteers need the support from the upper agencies. I have sort of wondered about awhile if the government is real about this. They have tackled the easy bit which is fishing but they don't seem to want to tackle the hard bit which is land use.

Guy: Do you know why that would be the case?

Sheryl: Well because there are not that many fishermen but there are a ton of land users. You are not really going to care that you pissed off three people but you are going to worry about the thousands that vote you into power.

Guy: Of course. Makes sense. So why do you think Raglan is important to the conservation of the Māui dolphin, that specific region?

Sheryl: Because we are the most environmentally aware town in the entire country. I could rattle off a whole heap of things that Raglan has instigated. We lead the country. We are the closest town in the whole country to zero waste. We've got a planting and fencing program of our harbor and riparian areas. You know like people are looking to Raglan. I got an email from somebody in Norway that heard about what we've done of planting and fencing of things and I sent them our catchmen plan, in Norway! When the planting and fencing program started, you know and this is cleaning up our water, I had people say oh you know you don't know that you are doing it right you don't know because you haven't tested the water and done enough science with the work. When that planting and fencing program started, it took 3.75 days fishing to catch a legal sized snapper in the harbor and now you can do it all the time. It works for the fishery so it's got to be better for the Māui dolphin as well. If all of the harbors of the west coast could really get serious about stuff. I had someone in the bay say to me "oh how did you do it how did you do it ahhh" and I said a spade and a plant is a pretty good start. It's simple. Our first meeting down at the Raglan

town hall to get the fencing down on the Raglan harbor which was mainly farm land, the farmers were telling us to eff off and it was over their own dead bodies. But now they are lining up, there is a waiting list for them to be fenced. It just takes time and perseverance.

Guy: What do you think is preventing the rest of the west coast communities from doing what Raglan has been doing?

Sheryl: Because they are not communities. Raglan is a community. We have wars in this town about stuff but at the end of the day it's still a community. I don't know if you get that in Auckland and other areas. We are the only town with our own harbor. You could possibly get that in Kawhia and Aotea but I don't know if anyone has gone there and told them. You are not going to get that in [location] because it's more than one community. Raglan town takes ownership of their harbor and I don't know if the rest of those communities do. That's what I think needs to happen. It's about community. Maybe you have to build the community first before. I don't know you have to start somewhere.

Jess: So I am assuming being conservation minded is what brings this community together to help the Māui dolphin?

Sheryl: Yep absolutely. You could go to the Manukau and you won't get the same answers from everyone you interview today. You just wouldn't get it. And you know the main habitat of the Māui dolphin is closer to the Manukau than it is here. If I was going to take you to see the dolphins today, it would be 15 nautical miles up the coast line. Sometimes they are down by our harbor and around here but that's where I would reliably go to go see them. And up and around the Manukau. So I think it is about the community and people who probably wouldn't call themselves greener. You know what I mean. If I said ah you are a greeny, they would just about hit you. But when they go home they recycle they do all the stuff but they wouldn't like you calling them greenies because they don't think they are. Raglan has a very high bar about green. The most of the rest of the green bar would be way down there. But ours is so high that our non-greenies are green.

Jess: So what in Raglan has been accomplished to raise awareness of the Māui dolphin or to help save the species?

Sheryl: I think all the things that have happened with the Māui dolphin so far have been instigated by Raglan.

Jess: Can you explain that more?

Sheryl: Well getting the species changed. The initial gill net plan. That was all Raglan based.

Jess: So do you feel like everything Raglan is doing could be spread elsewhere?

Sheryl: Yeah the land use part of it and that needs to be dealt with the harbors in the rest of the coastal margin.

Guy: So what do you see as your future role with the Māui dolphin and Māui dolphin conservation?

Sheryl: A retirement. I don't know. Like back in the day, it was just me. Now there is so many people I don't really need to do much. Back in the day, I felt like I was banging my head against a brick wall. When the first gill net ban was announced by the government, I was bouncing around like a bouncy balloon and this Guy rang me, a commercial fishermen, and told me I was dead meat. And I said well you better be really good with your gun because I'm bouncing around so much that you would be lucky to get me. And the next day I had half my garden chopped down. I had two or three cabbage trees that were out in the front that are gone now. And a few other things with diesel oil tipped all over them.

Guy: So what do you think changed their minds from that to now warming up to all of this?

Sheryl: They are still not supporting it. Commercial sector are not supporting but they are coming around. They are not as extreme as they were. It's just going to take time. And they are coming around by the day. And the powers could do a bit to help them along the way and be more supportive of the fact that for some of them they lost their entire livelihood. There was no conversation, there was no nothing. They just said bye. You know there is Guys who have spent all their days and all their lives going to sea and suddenly you know they had to change their practice. Some of them have and are happy with it but there is still a bit of a bitterness there. But you know they want to see the Māui dolphin survive too. Yeah that's about it.

Guy: So that's about it from us. Is there anything else you would like to share with us that you think we missed?

Sheryl: No. I am just surprised to see students from the USA here and not from New Zealand. It just seems a bit odd.

June: Sheryl I have question for you actually. The land use which is you know is a new point for me. And the cats in particular you named because they have a bacteria in their feces that is getting into the dolphins, is that right?

Sheryl: Yeah

June: Besides just making sure the cat waste doesn't get into the waterways, what other land use changes and practices should be made to protect the Māui dolphin?

Sheryl: Well look at the studies that have been done in Taupo. Old cows and young cows. They are looking at a program where they are only going to allow young cows to be near the lake because of the nitrogen from their urine is less than old cows. Your dairy cows back off the lake and young ones closer. The excess nitrogen is just not good.

June: How do we know that is impacting the Māui dolphin and the fishery?

Sheryl: Well, what's normal? What's normal water and what are we putting into the water to make it abnormal. Well you know, New Zealand had moas and that was the biggest land animal we had. We didn't have this high density farming. It's not saying it can't happen. Just not next to the river, not next to the lake. Then there is fertilizers. You know you've got heavy metals and you've got things in the water that never were before. We wonder why the Māui dolphin is on the demise. That's just me and I've not a degree on a science but those are just some things that we need to get out of the water that are negatively impacting the sea. Once you negatively impact the sea you are going to have an impact on the things that are in it. And the most vulnerable right now is the Māui dolphin. You are getting down on the gene pool. Unless things are changed, they are doomed. Like I said I hope I'm dead before the last one goes because that will be a sad day.

June: So when we came in we mentioned the potential of a cross breed between the Māui dolphin and Hector's dolphin.

Sheryl: Yeah that is happening already.

June: Have you seen that with your own eyes.

Sheryl: Well no but they have done some biopsies and have found some intruders (Hector's dolphins in the range of the Māui dolphin range along the North Island west coast). Maybe we catch some of the Hector's from the south island and bring them up here to help the gene pool as a last resort. Not something you would do today but we don't want to lose any more really. When you think that a lot of the females are aborting.

June: How do you know a lot of the females are aborting?

Sheryl: Because that biopsy stuff they did showed they were pregnant but not had no babies.

Jess: And you said that was because of cats?

Sheryl: Well yeah that toxoplasmosis. The only way the dolphins can get that is from cats. So you know find me something else that gives the dolphins that and we will go and ban that as well. But until then cats are the only ones on the list. I would just like to see that science really looked at and peer reviewed and published. Let's see how these greenies go with saying goodbye to their cats. Fishermen said goodbye to their livelihood but you know are the greenies going to say goodbye to their cats? Because you know you are kind of asking the same thing. Put it on the same level. Fishermen have been nailed over this. And they have stepped up to the mark and done the right thing. So let's look at the cat situation.

Interview #3 Phil McCabe- Representing KASM

January 29th, 2:30 pm

Phil: I've got some questions for you Guys, and I've got some questions for DOC

Lindsay: We would be happy to take those back

Guy: Alright, so, just to start off, how have you been involved in the past with the Māui dolphin and the conservation of it?

Phil: I've been the, for the last 2.5 years I have been the chairperson of KASM, Kiwis against seabed mining, which has been, you know, a big part of the membership or followership of KASM is people that are driven by the plight of the Māui's, because the proposal to mine the seabed of the west coast is essentially an overlay that the exploration permits to mine the west coast seabed is an overlay of the Māui dolphin habitat, essentially the permit areas are bigger than the Māui dolphin habitat and so lots of people are very concerned about the Māui's and the effects of seabed mining on the Māui's along the many of the beaches, I was the chairperson or I am the chairperson of KASM and I've engaged the public for that length of time, almost three years now, engaging with public from Whanganui all the way up to Muriwai all the way up the west coast, public meetings and different events and things like that and the Māui has been a big part of that whole conversation.

Jess: I've seen a lot of KASM signs around Raglan, do people take notice of that, is it very popular here?

Phil: Yeah KASM was established here in Raglan, in 2005 the local iwi, the local Māori community were aware of mining proposals along the west coast and they shared that information with the rest of the community and a big public meeting was held and the two meetings were held and both of them were bursting at the seams with people that were like "what are you talking about?" "Mining the seabed?" "Are you crazy?" You know and bursting at the seams and angry and confused and a load full of questions and so KASM was formed from that and for a number of years, 8 years or so, they say the small community of core people within KASM kept the fires burning and they sort of fended on a number of companies that have approached the phase of you know started moving through the process of gaining mining consent and they managed to fend them all off and scare them all away and then in 2012 we were made aware of a company, (TTR) Trans-Tasman Resources, that they were progressing their application to get to the second stage, and that is where we got involved and we were working on a campaign to essentially raise awareness of the issue and do what we could and it wasn't some government warranted thing that we put out and a big part of it was about the Māui's

Guy: Do you think that this is the biggest threat to the Māui dolphins?

Phil: Well I think to date the biggest threat has been and the biggest problem has been fishing but if seabed mining were to take place then it essentially destroys their habitat, there is no question, there was a two month period explaining what goes on and it destroys habitat in a large area, so I mean how can they, how can any creature, survive the loss of their home through degradation of their home particularly when they are so vulnerable, you know their numbers are so low, so they are fragile, and how can they possibly withstand the degradation of their habitat

Guy: So KASM has been successful at keeping all companies away from the area?

Phil: That application went through the full process, within EPA, the Environmental Protection Authority, and after the full process the EPA denied TTRs application and KASM was a big part of that fight, there were other groups that played a part in the fight but the company (TTR) has more or less folded in their fight

Guy: Why do they want to mine in the Māui dolphin habitat? Is it just a good area?

Phil: What they are after is iron ore and the black sand of the West Coast so it is a quality iron ore, with vanadium titanomagnetite which is another high quality product within the sand at the bottom of the ocean and that's where the resources are and that's where they are going to mine it just happens to be the same place that we live and the and the same place that the Māui's live.

Guy: What do you think is the largest obstacle to promoting the conservation of this species?

Phil: The mentality of the growth economy, *laughs*, the imperative for economic growth and the imperative for, well probably for New Zealand to try and wrangle it in a little bit really it is essentially, the paradigm that the current government is in and the past government this paradigm of natural resource and the exploitation of natural resource for our economic salvation, whereas there are many, many, many people in New Zealand for me where the preservation of our natural resources and the preservation of the natural environment, is actually our salvation

Jess: What does the Māui dolphin mean to you?

Phil: *Pause* I can tell you a story if you like?

Jess: Yeah, sure!

Phil: We had, in 2012, well every year the environment center runs the Māui dolphin day, which I'm sure you've heard about and 2012 we had a dinner here at Solscape before the Māui Dolphin Day and we had about 50 or 60 people here and we had dinner and then went upstairs to watch a couple of clips and have a talk about what we can do as a community to actually activate some of our concerns and our ideas and stuff so we

would come together and on that night a special Professor Liz Sloaten, from Otago University, have you Guys come across Liz Sloaten?

Lukas: We have read some of her papers

Phil: So she is the expert on Hector's and Māui's dolphins in New Zealand essentially, and a very passionate person about ensuring their future ability, anyway she was here and she showed us, DOC previously had the numbers estimated at I think 111, at that point and Liz broke the news to the room that the newest estimate was 55 dolphins over 1 year of age, and then she pressed play on a video of a world champion free diver, did a little promotional video on Māui dolphin, like an awareness video, William Trubridge was his name, and so the video started and then what Liz said sunk into me, and I had to leave the room, and came downstairs and just had a full purging, gut-all, cry, like as much as you have ever cried in your life, I cried, and I don't know where it came from or what it was, but that was I think it is called a cathartic experience, you know where you have these things that shift your being, really your life, and that's what occurred for me at that moment, and that was really, it was 2 days after that, we heard that the company TTR was coming to Raglan to speak to the Māori community here, and we planned to meet him and have a little protest and coincidentally he was turning up the day after Māui's dolphin day, so we let people know and we had a, a little scene on our website so that people could see the footage, but from that day that was really when I felt like I felt like I was committing myself to that work that KASM was doing, because I saw it as the last hourly call for the Māui's, if it was to get the go ahead, so what does the Māui mean to me? I guess you could say the Māui's might be, you might consider it an indicator species, in that it is indicating the health of the marine environment, it's just like frogs they are an indicator species in freshwater environment where, you know if the frogs are healthy then the environment is generally in pretty good shape, you know? They are sensitive and so on, and so I don't know if that's fact or not so I don't know that's just how I view it, Māui's are a manifestation or a kind of an example of what we as humans are doing to the planet essentially, you know it's an example of where we are going, on all levels and it is on all levels

Guy: So why do you think they (the Māui dolphins) are so connected to New Zealand culture as a whole?

Phil: I don't know that they were, they haven't been for very long, they kind of know of them and they know the Māori stories behind and the connections to Māui and the Māori will do but I don't know that too many New Zealanders knew of them much before the last 5 years or 10 years whatever, but certainly in the last 2-3 to 5 years awareness has been risen about them, some big organizations like Forest and Bird and Green Peace have been putting information out there about them and campaigning and stuff which has been great

Jess: And how have they been doing that? Through awareness material?

Phil: Through their networks and pushing buttons in media, and stuff and they been making comments and segments in media and that sort of thing, Forest and Bird is another good organization that you might want to talk to and WWF I think is another big one, I think, that has been doing good, it's these big organizations with big memberships that have some sort of sway in Wellington, potentially, sorry what was the question there?

Guy: So how are the Māui dolphins connected to New Zealand culture?

Phil: I think for the West Coast anyway, for the stretch of West Coast, from I'd say an hour or two south of here, up to Muriwai, which is north of Piha and west of Auckland, and a bit further north, I think the personal communities are very aware of the state of the Māui's, middle New Zealand I'm not so sure, but, the coastal people you know Raglan is basically in the center of the Māui's habitat, so we are the largest community on that stretch of coastline, that you know part of that (Māui dolphin) habitat is, you could go to Plymouth a bit further south but I feel the Raglan community that feels a strong connection to the Māui's and a strong sense of responsibility, and passion towards protection of the Māui's

Guy: Because they are right in your backyard?

Phil: They are our responsibility we are the community that is here, today at this point in time where the Māui's are struggling, and you can't really express the depth of feeling, that's there and it's as deep as it can possibly be, and that sort of thing so I think that the government doesn't quite grasp that and they don't understand the importance of this issue to how it is for the people of the coast, and that's a bloody shame

Lukas: So kind of along this line why do you think it is important to New Zealand as a whole to protect this species?

Phil: I can answer that in several ways, really, but the first one would be that it (the Māui dolphin) is a species that is about to go extinct, that's the first one, and everyone should be concerned about that, and then you know you can answer it on an economic front, how would it look if "the green" New Zealand allowed a precious mammal, mammalian, you know, brother/sister of the human race, to go extinct on their watch, while they knew the situation and they knew what the effects were, how would that look to the rest of the world, and how could that fit into our economy, it's like do you want a happy ending story or do you want a sad ending? Do you want to tell a good story to your grandkids or to your potential visitors from the other side of the world, to your potential trading partners on the other side of the world? Do you want to tell them a good story, a positive story, a story that you are proud of? Or would you try and hide and be ashamed of something, that's the essence of it for New Zealand and the people of New Zealand I think. Do we want to be proud of something or do we want to be ashamed of it?

Jess: What are some things that individuals can do to help the Māui dolphin?

Phil: Individuals can, if literally thousands, and tens of thousands, and hundreds of thousands and millions of individuals can actually spend three minutes, five minutes, half an hour, three hours writing an actual letter and sending it into the minister for the environment, for conservation, then that might have an effect, if hundreds of individuals are actually taking those few minutes to do that, and pressing a button or signing an online petition, those are good things, talking to friends is a good thing, sharing the information on the internet or in person is a good thing, volunteering for organizations who are doing the work is a good thing, giving money to the organizations who are doing work is a good thing, there are lots of ways, but I think, really fronting up and really expressing your concerns in full, to the people sitting in the seat of power, so they actually can't ignore it, that's really good and there are lots of ways to express yourself, without people having the opportunity to ignore you

Jess: Do you think it is important to teach children about this?

Phil: Absolutely

Jess: And how do you think that can be done?

Phil: Children are amazing and they are powerful, and they are the future and when they hear stories like this it breaks their heart, and those Guys sitting in the seat of power they all have children and I bet if their children knew that they (their parents) were in power and had the opportunity to make decisions, right decisions, that could... there's our solution, Simon Bridges has kids *laughs*, if you Guys can talk to Simon's kids and say "Did you know this? Your dad can fix that" If he just writes it down on a few words on a piece of paper and signs it, he can fix it. So yeah, Simon's kids can probably save the Māui's.

Lindsay: So if you could tell Simon's kids one thing, potentially, or something to say to their dad to save the Māui dolphins, what would you tell them?

Phil: I would tell them that these Guys are on the brink of extinction, you know what extinction is don't you, that means gone forever, and the government in power now has the ability to turn this around, and bring the number of Māui's up, and bring them back from the brink of extinction, the government has the ability to do that, your dad is part of the government, your dad is actually the Guy, in the seat, he is actually one of the handfuls of people that can make that decision, what do you think he should do? Do you think he should ignore it or should he act? That's what I would say to his kids.

Guy: So besides KASM, are there any other outreach programs that you are aware of that promote that conservation of the Māui dolphins?

Phil: Yes, WWF, Green Peace, Forest and Bird, Māui's... can't remember the name of them from west of Auckland, lots of, I mean you asked about kids and in that campaigning that we have been engaged in for the past couple of years up and down the coast, we

approached many schools and spoke to lots of kids, and kids, they pick it up. We went to a school just north of where the seabed mining proposal was, and it was declined and those kids were amazing, they started organizing events, a group of them went and spoke to their local council, and said “We don’t want this to happen” and a lot of the communication coming out from those kids was about the Māui’s and their concerns with seabed mining was around the Māui’s and so kids are individually picking it up and running with it

Guy: Do you think they are lacking in any areas that you think they could improve upon to help with the conservation efforts?

Phil: The kids?

Guy: Or just in general, these outreach programs.

Phil: Don’t know really, don’t know. Sorry, well I don’t want to get controversial but I guess just the direct approach is something that might be useful.

Guy: So what do you think DOC can do to help (the conservation of the Māui dolphin)?

Phil: I think that DOCs an awesome arm of the government, their name is the Department of Conservation, and the people that I have come across in DOC work in a way that stands behind their name, and unfortunately the government of the day have ripped the guts out of DOC on a lot of levels, which is a real shame, they are taking energy from one place. What else can DOC do? I guess if the DOC staff were genuinely unhappy with the direction of DOC, perhaps on mass they could stand up and say, no they are not happy with that direction minister and actually revolt so that the government may actually listen to them and they can say (to the government) that they are acting but they are not pushing this issue strong enough within the corporates, the government, in a room full of ministers that make decisions and make laws that the minister of conservation can potentially voice his concern in such a way that the others couldn’t ignore it

Guy: So what exactly do you think that DOC needs to do to?

Phil: DOC needs the support of the rest of government, to save the Māui’s dolphin. That’s what they need to do.

Lukas: Do you think there are other things too that they could do without that support that would help?

Phil: I think that’s pushing shit up-hill then, you know if they haven’t got the support it’s like pushing a car up a big hill on your own, you could do that with you know, 50 friends, but it requires a full focus to be successful without anything undermining the process of protecting. There are some difficult decisions to be made here, there is no question and yes, there are going to be losers in these decisions. But, so? They’ll be okay, they can look after themselves and maybe we can direct some funds to support them transitioning out of what

they might be doing or what they might want to be doing. The fishing thing is also the runoff from land and stuff into the rivers are toxic to the environment to a degree as well, and it's another concern. But I don't know really know the research that really outlines what the effects are of that. I'm sure it's a slow and steady degradation of the environment and it has been for the last several decades so that's another thing that needs addressing, is cleaning waterways, the freshwater ways from farming runoff essentially is what I'm talking about. So yeah, there is expense in that but so what? Money comes and goes, dolphins come and they go, they don't come back.

Guy: So, working for KASM, what kind of difficulties do you face working with these kinds of groups?

Phil: Funding, if we are doing advocacy work, there is no funding for us. You know advocating for something, or protesting something that wants to happen, there is no funding for that sort of thing, so we are all volunteer based and being volunteer based means that myself and June and other people steal time and energy from our real lives, we are working outside of that and what we do, we actually steal time and energy from our lives and put it to that and there is no compensation for that no sort of compensation to soften that blow sort of thing, and it wears you out after a little while and you can't actually maintain that for any lengthy period of time in a healthy way. So engaging in that legal process that we did last year for that hearing there was no funding in that for us engaging you know we had thousands of members in a very serious way and in the end the decision was saying exactly what we were saying, the decisions makers were saying, well they didn't say it, but they said it, "you're right, these Guys (the mining company, TTR) are dumb in what they want to do", essentially and it's going to screw up the environment. So we were right yet had no one supporting us, no government base pushing us, no individuals giving us money.

Jess: Why do you think Raglan is so important in Māui dolphin conservation?

Phil: Mainly because we are in the heart of their habitat, and we are a coastal people that love the ocean, we all spend a lot of time looking at the ocean or being in the ocean or walking by the ocean. It's the most significant community on that stretch of coastline.

Lindsay: What makes Raglan different from the other coastline communities that may be around here? I know that you Guys are in the range of the Māui dolphin population but is there anything else in this community that kind of sets you Guys apart?

Phil: The community is a really diverse, interesting community, well generally surfers sort of have a connection to the planet, you know, because they are in the water all the time and they get to think a lot, they get to see some beautiful sights and things like that, it's an occupational hazard that you become aware and part of the environment, so there's that awareness. There are a lot of artists in this community as well, the community itself is

during the last couple of decades has tuned into a lot of environmental issues and people are living, well I wouldn't say alternative lifestyles, but appropriate lifestyles where they are thinking about their effects on the planet and how they operate on the planet. There a lot of smart people here who are compassionate and passionate about the environment.

Guy: So, Raglan is really strong in conservation efforts, why do you think it is lacking in the other communities along the West Coast?

Phil: That's a good question, because they come here and they are inspired by it and they are drawn here and why doesn't it exist in those communities? I would probably put it down to television.

Guy: Can you elaborate a little bit more on that?

Phil: Television *laughs* TV, you can think you are mature and smart and stuff because you watch the news every night, but no. Are you that stupid? To listen to people tell you bad news from all over the world, just sit there and listen to bad news all night. Or what some chick did last night, it's whatever, it's like the tabloid magazines, sorry I'm being a bit controversial here. But, television, my mum watches tennis she was a great tennis player and she's probably is a good tennis player and she watches tennis, but she doesn't participate in tennis. You watch television and don't participate in your life, you're sitting on a couch watching other people pretend to participate in life. And you might watch something which is real life, but you are not participating, you are watching other people live. I guess it's just the cultural thing, now. It's something that you have become more and more aware of.

Guy: Do you think technology in general is hindering some things for the conservation efforts for the Māui dolphin?

Phil: Well, technology has been awesome, as well. I'm not saying that progress and technology is bad, I'm just saying that television is really bad. It's like the other day, something was happening, the surf was pumping. But I said I'm just going to go on my computer for a minute, and then three hours passed and it was getting too dark for me to go surfing, I've just missed a really good session. So you have to be really careful of that now don't you. But technology for conservation is actually a really good thing, we utilize social media a lot, we create it and upload videos to inform people, and it is so easy to share that stuff, and we are able to touch people from all over the world, and that's quite special and it is in real time. So that is a quite powerful tool as well.

Guy: So what do you see as your future role with the Māui dolphin and Māui dolphin conservation moving forward?

Phil: I kind of think that KASM, we haven't really discussed this at any length with the committee or membership or anything, but something that came to me during the process

of the seabed mining hearing that we were a part of, what came to mind was actually Raglan or the KASM community or wherever it is, could raise funds to better understand the Māui's habitat. Actually get work done so that we know what is in our backyard in case another approach comes from another company to mine oil or sands or whatever. If we have information on what exists out there, and what exists between community and the ocean, and what the relationship is. Because I think a big part of decision making is what are the effects on the community for these activities? So if the sand mining proposal was going to effect the surf breaks, it would be unlikely to get passed. So if we can do research on what the marine environment means to coastal people and to New Zealand in general, that would be good information to have. It would be good information for everyone to have. And if we can do research on economics and what our economic dependence is on the marine environment as well, it's all good information to have. We can have information on what exists out there, what species exist and so on. So that's kind of a proactive approach rather than a reactive approach. You know if we get this application in from the company and we have to act quickly then having a proactive approach could be another way to approach it.

Lindsay: Do you have anything else that you would like to share with us? Anything we didn't ask you?

Phil: [*Pause* Looks at June]

June: Go on and tell them

Phil: Tell them what?

June: In terms of the single biggest thing this community could do to save the Māui dolphin, what is that thing?

Phil: *Pause* to June: Do you know the answer?

June: I think it is about leaving their habitat alone, but we have been hearing different views, you know.

Phil: Well I think, my view is, that it is clear that everyone is agreement that this species is in trouble, there is a thing in place called the marine mammal sanctuary, running up the coast, and it is there for the Māui's, *well I think it is there essentially for the Māui's [looks to Jack] yeah essentially*, so it was put in place I guess because of the plight of the Māui's, yet within the marine mammal sanctuary, the government is allowing seismic survey vessels to operate. Seismic survey vessels, this is for the exploration of oil and gas, seismic survey vessels are large ships, that move at about 5 knots in straight lines doing a grid, and moves up and down in an area that can cover thousands, tens of thousands of square kilometers, and they drag an apparatus, they got a thing off the back and they drag some apparatus, and it's as wide as this table and potentially 3 or 500 meters wide potentially, and they

drag big long lines with sensors on it, and at the back of the boat they set off an air gun, which is a sonic boom. Have you ever heard of a sonic boom?

Guy: Yes

Phil: I heard a sonic boom from a volcano once, when it was erupting and we were 20 kilometers from where it was erupting and first we saw a light go and then about five seconds later we heard a *boom sound*, it's kind of the loudest sound that you have ever heard in your life, and they let off a sonic boom every 15 seconds, 24 hours a day, 7 days a week, for weeks on end. And the sound from that sonic boom can travel, because in water sounds travels and I think the furthest the sound can travel is up to 80 kilometers. So we approached one of those vessels in Taranaki, a couple of years ago, and it was blowing directly offshore, stiff breeze, and the boat was about a kilometer and a half off shore, and we stood on the edge of the shore and we could audibly hear the booms every 15 seconds but more than that you can feel the booms, you can feel the air poofs, it wasn't a bang, but more of a *poof*, that sort of sound, because it was underwater, but you can feel the pulses coming at you so, that doesn't sound like a sanctuary to me. For that to be occurring anywhere near the Māui's that is a crime. And that to me is like a shotgun going off outside your bedroom window every 15 seconds.

Jess: And I'm sure the dolphins are more sensitive to that.

Phil: Yeah, like what the heck is that noise? I'm out of here, I'm going to go somewhere else where I don't know, it's not my home but I'm going to go there.

June: And they definitely are not going to breed here

Phil: Yeah I'm not comfortable enough. So you know a sanctuary is a sanctuary, that's what a sanctuary is and that's not a sanctuary. I think we as humans need to give the Māui's a wide berth, to take a wide berth for quite a few years. I don't know that we can actually do much for them to increase their numbers, but we can stop doing what we're doing that's decreasing their numbers. We can stop introducing, we can, not introduce things that are going to further decrease their numbers or have any potential whatsoever to further decrease their numbers. Because they cannot withstand a further decrease in their numbers. So, what can we as a community do? You know we only have so much influence as a community, but we can certainly look after our backyard we can stand staunch and strong within our reach, within our area of influence we can stand staunch and strong, and hold off any sort of threat to the Māui and I think that if every community along the coast did that then we would be okay, it's a shame that it comes to that.

Guy: Thank you very much that was very helpful.

Phil: Thank you Guys, for doing your work. So what will this manifest out, what might it look like, your project?

Lindsay: So from these key stakeholder interviews and talking to you Guys we are hoping to compile everything that everyone has said and make some recommendations to DOC that they can give to communities on what they can do individually or as a community to help save the Māui dolphin.

Phil: So you're going from community to DOC back to community?

Lindsay: Yes

Phil: Well, you should be trying to go in the other direction *laughs*

Interview #5: Rick Thorpe- Representing the Raglan Community

January 30th, 2015 9:30

Guy: So the first question is how have you been involved in the past with the Māui dolphin and its conservation?

Rick: Well, the community you know has been involved for hundreds of years and me as an individual you would be interested in that?

Everyone: Yeah definitely.

Rick: So about in the mid 1980s-early 1990s, I was a marine mammal officer for Wildlife Service and then DOC and Waikato was part of my patch. From information from the local community, it was obvious that the dolphin around here, the popoto, which is now commonly called the Māui dolphin, was in fact a different species from Hector's dolphin down on the south island and tangata whenua knew that and they had connections as they migrated from Kaipara to D'Urville island regularly. And they knew of the dolphin.

Guy: So they realized it was a subspecies before everyone else?

Rick: Yep. They often talk about Hector's being a different dolphin. They talked about it being popoto. So each year for eight years I've put in a budget, submitted that we should have a budget to do some work on it and find out more about the distribution and the abundance and those days there was very little DNA work done and it was more on behavior and every year the money was declined and they said it was just Hector's dolphins on the north island so for eight years the community tried to do something. The most we could do was establish a marine mammal group of people and they were local fishers, commercial and recreational fishers, people who loved to surf and were trained in marine mammal strandings. We had a team of about 25 people based here in Raglan and the only budget I had was to give out free films to fishermen to take photos of popoto off the coast to start a database of this dolphin in particular. And then they decided to call it Māui dolphin and suddenly we had genetic work to confirm that it was a different subspecies and here we are today. So it was beginning of a new day. Through the community, the environment center built a catchment management plan which my partner and I wrote and it was a culmination of about 10 years of research and meetings and they came up of a list of activities on a catchment basis that we could do to help preserve biodiversity and social and cultural fabric of Raglan which included unsustainable farming practices and what we needed to do in the harbor and the effects on rivers etcetera. And many of the activities in that were directly related on the final impact on the coastal species and the dolphin being an indicator of the health. And then Xtreme Waste. Kelly and I have been involved with Xtreme Waste which is the community recycle center and that was in the mission that we had an incredibly toxic landfill that needed to be closed and the diversion of toxic waste

and the tidying up and restoration of the old landfill. So that works been happening over the past 14 years as well. Nearly 70-80% diversion of waste from landfill and water quality from the old landfill has been monitored by the regional council on the yearly basis and there is no discharge of heavy metals or toxic materials into the harbor. So the community has been really super, super active in restoration and admission of unsustainable catchment practices and has been really proud to have turn that around.

Guy: What do you see as the biggest threat to the Māui dolphin right now?

Rick: The people

Guy: Can you elaborate on that more?

Rick: Yeah, Well all of the impacts are really people based. Probably the largest ones for me are that we now have a fishery which is very impoverished and a bio abundance which is pathetic to what it used to be here on the coast and we hold that up to the Ministry of Primary Industries and the Ministry of Fisheries saying that fishery is sustainable and it's improving. Yeah that's quite true it's improving. It's improving from absolutely pathetic to really, really bad and we know this because you know we've got some ability to measure that with marine reserves that have been established. Like up at the marine reserves where there is fifty times the abundance of crayfish and other species up within the reserves. What we perceive as being not much and what we perceive as being normal in terms of abundance is actually fifty times worse than what it should be. And so that is just a slow degradation of you know land use, unsustainable commercial fishing, loss of bio abundance and biodiversity meaning that there is less and more competition for food sources. All of that is human induced and again we can show that we have the ability and all of the tools to reverse that.

Lukas: So what do you see as the largest obstacle to promoting conservation of the Māui dolphin if people are the largest threat?

Rick: Yeah, well I think there is not enough self-interest for the dolphin to be saved. You know apart from kind of being in the cute category in terms of biodiversity and so the conservation folks you know people want to save the dolphin because it's a high intellect being and we've got that cute value. And of course tangata whenua have strong really spiritual cultural connections to it but other than that it provides this country with no income. In fact it's the exact opposite. It's a threat to income. So there is no political support in saving this species. Perhaps in contrast something like the black robin which was one of the world's rarest birds and was brought back on the brink of extinction. We only got money to do that project because it did not interfere with any other land basic activity. If it actually required massive habitat protection and conflicted with farm practices, we probably wouldn't have been able to save the species. So sort of we sit here and try to sort of fluff around the edges on how to save the species because we are trying to protect some

of commercial fishery values. So exports and the self-interest to perpetuate the unsustainable fishery is really going to be difficult.

Jess: What do you think it's important to teach children about the Māui dolphin and conservation?

Rick: Well I think it's more holistic than that. You know and I think that they in general, the younger generations here in Whaingaroa...Kelly

Kelly: They are really connected to how everything fits together. You might find that the community has less to do with the government and needs to find ways on how we can teach them.

Rick: Yeah and Raglan kids they jump off the bridges in the afternoons. They are aware of the tides. They are aware of the water quality. They get pissed off when they get sick from sewer spills. They are aware of where the shellfish are. They go surfing every day. They are really connected. It might be different from other people who perhaps live in Wellington, or the heart of Auckland or Boston. So yeah that connection is a really important thing. I think if we maintain that quality connection so that people are involved in the action of conservation. And I don't mean living unsustainably throughout the week and then join Forest and Bird for the weekend, you know just trying to balance the book and make it through the pearly gate. I am talking about living tikanga, people making conscious decisions and being able to actually participate in practices on a daily basis. In many ways, government departments have removed that responsibility away from us you know and DOC at the moment has gone through a really low budget at times and that is just inevitable with this government that we have got where social services and environment take the cut because those things are frivolous and you don't need them in the corporate world. But the reality is that becomes really fragile and depends on government budgets where as if you have an active community and understands how to be involved practically then you know I think that is a better sort of system. So yeah I think the youth know what to do and have a good feeling for the dolphins and what's unsustainable and should be stopped.

Jess: Do you have any specific ideas or actions the community can take to help save this species?

Rick: Yeah well I think it's a continuation of actions that we have already been doing. I will give you a copy of this which is sort of a submission written a couple of years ago. There is a whole bunch of recommendations of things that we should be doing as well as the summary of what we have been doing.

Jess: Great thank you!

Guy: So what do you think DOC is lacking in terms of conservation and how they can improve what they are already currently doing to help save this species?

Rick: Yeah. Well like I was saying it has a lot to do with the budget which is really tough. I think it's an area and it's tough for Jack. He sits in an important area and he does stuff way outside of his job description. He's been aware of and proactive in this area for a decade or more. But it's really you know if you want to save the species you need lots of partners. You know take for example, the pigeon, the native pigeon is a great example where as 90% of all pigeon chicks are killed by rats throughout the country. So it's obvious that rat control is what you need to be doing. But DOC does not have the resources or the people power or the tools to kill enough rats in the forest so that the pigeon is safe. So DOC needs partners, serious partners, Māori being one. So if there is a reason for these other groups to be involved. If there's a partnership, a partnership that is about managing and sharing these resources in a sustainable way then those partnerships would be real. It was obvious 20 years ago that DOC would always have a limited budget and needed serious partnerships. But since it's a political animal continued down a way or a road that was about sole responsibility and sole charge and were managing the resource on the behalf of the people of New Zealand. I think that was a bad move. I think we know see that you know here we are with virtually no budget and not very good partnerships. So definitely partnerships with *tangata whenua* and that's enshrined in the act that they have legal access to the resources and never handed that over but yet hasn't been honored by this government. So that is the first one. And there are other partnerships that are more difficult to manage but that need to be explored. Partnerships with people that have a commercial harvest of these species like fish, marine mammals, timbers, and whole variety of resources and their use. And the other group which are even hard to manage yet again like the Western conservation group.

Jess: Are you aware of any outreach programs for the conservation of the Māui dolphin?

Rick: There the annual celebration here Māui dolphin day that has the recycled raft race. We celebrating the work we are doing as a community to support the dolphin and we are trying to turn it into a positive. You know and describe it as a celebration because it's daunting all the work that needs to be done to turn the species around back from the brink of extinction. And that has happened for many years. People like Jack have been very supportive of it but again that's kind of limited by budget in terms of what we can do. Some organizations like the Wildlife Fund for Nature have supported it in the past. But every year we've talked to the district council and regional council but they kind of get confused and don't really see it as their issue. And yet you know a real linkage through to those people and their statutes and responsibilities.

Guy: So kind of going off of that, who do you see as the key people to involve in this Māui dolphin conservation?

Rick: Well all of the people who use the coast and the coastal borders. I think we need to be supportive of some of those uses like some of those people who make a living from commercial fishing here. I think we should have no net fishing off the coast here. It should all be line fishing. And if it was line fishing, it would be the most sustainable fishery in the country and would be an amazing, amazing fishery for those people to hand over for generation and generation and generation. I think if we stood beside our commercial fishing and were able to access some funding to help them convert some of their boats over to line fishing then that is the type of proactive, positive change that I would like to see. But it's definitely us. All people who live along the west coast are responsible for looking after Māui dolphins. Not John Key, not legislations. It's human induced activity. It's our decisions, how we set our nets, what we pour down the sinks, how we behave.

Jess: So I think you kind of answered this of how Raglan helps with conservation of the Māui dolphin but how could other communities such as in Auckland and Wellington help since they do not have a direct effect on the Māui dolphin as much as the west coast communities do?

Rick: Well Auckland definitely does. Because the water flows from Auckland to the west coast. All of those people are coastal visitors. Thousands come down to use the west coast. So yeah all of them are directly involved and need to think about their responsibility. But equally they have a large population and have access to funding so a few dollars per person could go in to support it and therefore can make a larger impact. Lobbying as well you know these democratic governments seem to be in some cases anyway cannot vote. So writing submissions and being active and knowledgeable. Having good quality information and knowing what is happening and what is possible for the future in terms of the restoration would be important for those people.

Guy: So why do you think other communities along the west coast are not as conservation minded as Raglan?

Rick: I'm not sure. We kind of talked about this in car on the way down. Forever, the mountain Karioi has been a name from the eastern pacific. Kari sometimes referred to as the "house" and Oi as a shorten form of "toy" and the arts. So House of the Arts, a place where you would go learn the arts. So it is no surprise that with a mountain called Karioi or house of the arts that this is what we have in our community. We have a massive amount of artists and everyone is so surprised why they came here. So many singers and potters and ta moko people and world famous surfers and everything else. Maybe spiritually that there is something connection here with the mountain and the harbor as to why this collection of people are conservation minded. Maybe it's because of those arts that these people see things in a slightly different way. But it's also the tangata whenua here having spiritual connections and being able to share their stories that this community is maybe a little more aware of the rich history we have in this area.

Guy: Do you think there is any ways to spread that to other communities along the west coast?

Rick: Yeah I am not sure if it needs to be. I think that they all uniquely got their own stories and maybe there are parts of the west coast that are still a little bit red neck and Taranaki maybe had an awkward beginning 100 – 200 years ago with the raping and pillaging of Māori lands. You know and even though the government tried to prevent that from happening perhaps and perhaps it was well related to owing money to the English banks and the repayment of that and the confiscation of that land and selling and privatization of those lands. But there is an awkwardness in Taranaki and those old Pākehā settlements you know who do not have those spiritual connections to the land and still have views about extracting value from the lands. Maybe perhaps that another generation of people to come where they move on and their children are more connected. What's your thoughts Kelly since you've surfed the coast?

Kelly: It's really interesting because Taranaki and Auckland it's probably the most populated and probably has a louder voice. But maybe here in Raglan people are more encouraged to talk their mind and speak their mind. Ideas can flourish easier. Taranaki is an interesting place and is very industrial and Rick said has been through a lot. So it's about issues of culture and connecting again. There are not as involved with the coast as they are here. You would not say that there is as many surfers or as many fishers you know. It is a little more limited with more limited engagement.

Guy: So what do you see are your future involvement with the Māui dolphin and its conservation?

Rick: Continuation with what I'm involved with today and the waste programs at the recycle center so continue that. We've set up a sister operation and we've been working with Auckland council to establish more recycling centers and solid waste and keep working away at that. As an individual and a father of two children here, I will continue to take them fishing and tell them stories and you know show them the things that I've learned in the Pacific about the fishery and how to manage that. For the Māori, Tongaroa which is a realm or an area that went from the high tide marker way out to the ocean. And yet for the New Zealand government, the regional council has a responsibility but only to a certain area and district council does, and DOC does and MPI does, and ministry of transport and minerals and all of these organization are all trying to manage the same realm. And it doesn't work particularly well and I think with what's on the table in terms of a species recovery plan for Māui dolphin, for popoto, is about looking out at the coast and having to think about the area in which they live. But in my family it is more holistic than that, it includes everything that leads into the harbor. The harbor fishery needs to be managed in a certain way to help support what's going to happen off the coast. So for me I know that this harbor here by doing interviews with the old fishers and

knowing what the abundance of fish was 50 to 100 years ago, this harbor could actually provide all the seafood that is currently being caught by all the recreational boats going off shore. And you know that's meaning \$50,000-150,000 on their boats and their equipment and they are going further and further. So I say scrap that whole industry and bring everyone to the harbor and fish within the harbor and in the safety of the harbor and improve the harbor fisheries so that it actually has a goal of providing fresh seafood for every household in Raglan twice a week. You know and we could do that. There's so many things in the harbor that we could do. And again get rid of the nets and establish fish traps. Fish traps are a technique that has been developed by Pacific islanders over the 2-3000 years that work really, really well. And they have very minor ecological damage. There is a whole bunch of techniques that we do not use in New Zealand that we could use here. The harbor fishery could be a massive abundance that would negate the need for us to travel with the boats off the coast and have possible negative impacts on the dolphin. That's what I would like to see: a harbor fishery's management plan established.

Kelly: You can't expect kids or anyone, you can't expect anyone to save the environment without loving it first. They have to have the connection so it's just like Rick said when he said he just going to continue to take his kids fishing. That's all you can do. Encourage them, get them surfing. You know that's what makes people have that connection in Raglan. It's because they are so involved with the environment.

Jess: So is there anything else you might want to tell us that we might have missed?

Rick: No not really. Probably there is just some more details in that submission form I gave you. But probably just a positive message from ourselves. We have the ability to save the dolphin if we want to. We can save the world's rarest robin. We've got so many examples of saving rare species in this country. We have the technical ability to do it but I don't think we have the political will to do it and I think that needs to be addressed. I think the Māui dolphin is not worth anything to this government so I think we need to sort out this government and get some priorities sorted. Māui dolphin is only an indicator of the health of the west coast and there is so much that we could do. As I said before it's about bio abundance and so I want to bring our kids up and their children up in an environment where there is a massive abundance and not this impoverished thing that we see today.

Interview #6: Davis Apiti- Representing Māori

January 30th, 2015 10:30 am

Note: Showed us a video he created about his connection to the Māui dolphin and gave us some background about his involvement before we began asking questions during the interview

Davis: Our role is to make sure, a kaitiaki is a person that identifies things that are happening and make sure there's a solution to fix it. So if there's anything happening that's not right the kaitiaki will go in see what the problem is and put out the solution and fix it before it gets to an extreme where we can't fix it. So when we came over a thousand years ago, the first 500 years when they landed in New Zealand was conservation. They learned everything, it was all about conservation for the first 500 years. It was about the plants, it was about everything that they get to learn. So they had a good system going Māori did, it sustained them for that period, a thousand generations, it sustained them. The last 300 and you know with what's happened in the last 300 years of the Waitangi, the signing of the treaty, we see that it's all gone to hell. The old fishery is in danger, our fisheries are in danger, and most of the native species are in danger. I think if they had went in as a partnership, from the beginning, this wouldn't have happened. That they would have went straight in, and kept that partnership, and kept with the kaitiaki, this country would be, people would be dying to live here. Well, they are dying to live here anyways. With the balance it would have created, between the environment, it would have been far greater understanding between the two Māori and European races and at the moment here it is one way, and that's economics. At the end of the day its money that governs the world. At the expense of our environment which is, we can see it happening not only in New Zealand, everywhere.

Davis: Can I ask you a question? What group do you belong to? Do you fellows belong to an organization?

Jess: No, we're here, we're completing a project. We all go to the same university so what we're doing is completing a social science project that involves raising public awareness of the Māui Dolphin and we hope to do that through interviewing key stakeholders and finding ways that individuals or communities can help out. We'd also like to create a promotional video which is why we'd like to video tape this as well as involving the children by creating a children's book with DOC.

Davis: Wow, amazing. Most of the interest is coming from outside of New Zealand which is...

Jess: So our school has a partnership with DOC and DOC proposed this project for us and that's how we're involved with it.

Davis: Most of the concern is from outside our country and its mainly from worldwide organizations, and they're telling New Zealand "Sort this out," and New Zealand's not listening, not New Zealand, it's just the government. Which is a shame because it's such a unique species and such a beautiful little dolphin that we definitely need to save. And with you fellows behind it, it will be a big boost. Good luck.

Guy: Thank you. Alright so I guess we'll just start off with, you kind of already told us your involvement with the Māui dolphin, but could you give us a little bit more background with that?

Davis: The stories that our kaumatua have told us about dolphins. Getting involved with Liz, I don't know if you've met Liz Slooten, she'd probably be another one to [interview]. Liz Slooten she's been a big help to us, teaching us more about what's happening and all the work she's done on the south island with the Hector's dolphin. So, and Steve as well really helped [show] where we're heading and then helped out with Waitangi claims, affidavits. Look, this is something special to us, you need to really listen to what we're trying to say, we're partners in the treaty, we signed it equally as partners. We want to make sure you start listening instead of just giving lip service and tokenism, which is all it is, just a token, a couple of words on a piece of paper. But I've known since I was six that I'm a kaitiaki so you know when you want to go to university, I knew when I was ten that I didn't want to go to university. I knew when I was six that I wanted to be a kaitiaki. It's not something that's given to you, it's something that's shown to you. Because if it was given to you I wouldn't have as much passion as I have and the way that it's been given to me through my parent's two great grandfathers were two special spiritual leaders on both sides of my family. My mother was a chief, it's unusual to have a women. It's just following those lines.

Guy: Alright, so what do you see as the biggest threat to the Māui dolphin right now?

Davis: I think the biggest threat to the Māui dolphin is the fishing, that's the biggest threat. [people] try to say it isn't, that's its pollution, its recreational fishing. They may be a part of it, but the majority of it is the fishing. It just taking everything, its taking their food source and it's just taking them out, that's why they're getting caught in the nets. So we've just implemented a ban, a 250km ban on Māui area from Taranaki to [location] and 20 nautical miles out, no trawling, no gill nets. We'll be writing to the minister of conservation and the minister of whoever we need to write to and say stay out of our area, you're not permitted in there. Because until that dolphin has come back to where we want it to come back to,

then we'll open it up again, but at this time we've got a rāhui over it, you can't go in there. Those sorts of activities aren't permitted in that area and also legislation is another thing that's really quite weak. We need stronger legislation through the government and through listening to the Māori like Liz said, "why don't we just use Māori tools, they're just as effective as European tools, why don't we just listen to their voice for a change." If this is not working, why don't we change it to something that might work, which we know will work. There's no such thing as might work, it will work. So you know these academics they're all saying lets change our tactic because we need to, this is getting serious, this is something we have to do and whatever it takes, just because a lot of people are going to lose jobs, shucks. We can take people out and do tourism, look at the dolphin. Then what are you going to do when you kill off the dolphin and kill off the fish. Then you're going to say oh sorry, and then you won't have a job either, so what's the use in that. Why don't they just listen to what the tribes want and we don't want the money, who cares? Our resources are worth over 4 million dollars, we don't want it, what's money going to do? We don't want it. We'd rather have the dolphin than the 4 million dollars

Jess: What kind of Māori tools would I believe Liz in the video, what kind of Māori tools was she talking about?

Davis: [Māori tools] is another one, rāhui is another one, tapu, and they use all of those mechanisms to protect a species if it was getting to a stage where it was getting affected. They would put it over an area, they say you can't go into that area until the tapu is lifted, and we won't go in there. So you know they are effective tools.

Jess: And you think they could be used?

Davis: They need to be used, I don't think they should be used, I think they need to reinstate what I've been saying is we are equal partners in the treaty, and they need to start opening their ears to what we've been saying for the last 300 years. I'll tell you, it would really be cleaner; you'd be able to drink the water. It's crazy, so that's why we are sectioning off area areas and saying that's our area, stay out of it. We know what's best for us, we know what's best for our tribe, just let us do what we know best because we know what works, its worked for us, let us do it and give us the opportunity to have the tools we need, the legislation so that we can do it.

Guy: So what do you think is the largest obstacle to promoting this conservation of the Māui dolphin?

Davis: people

Guy: Can you elaborate on that a little more?

Davis: They really don't know about the dolphin. How many people have you come across that talk about the Māui dolphin, that know about it? They don't know. So it's their ignorance of what's happening, and really there's not enough on television, I'm just kicking DOC. On TV, kicking DOC again. They need to say look, 55 and counting. If we had the money, that's what we'd be doing, 55 and counting. And then there'd be 54 and counting. So you know, simple things like the basketball team, simple things like you know we had promotional ... every time we'd play a game we'd hand out pamphlets to make sure people knew who were the Māui dolphins, what's the Māui dolphin. People would stop us and when we go to a grocery store and oh, you Guys are the Māui dolphins? You know? Promotion is very important and you've got to make sure you start with these kids up to your oldest generation. Your generation will save whatever's left. It's up to you fellows now. We're there to steer it but you fellows are going to be living in the next 70 years. I'll be gone in the next ... I don't know, I won't say anything but you fellows are the next ones that have to step it up. We are who we are. It's interesting I was in Wellington for this conference, and this girl was sitting next to me, pretty girl, that's why I sit next to her. She said "oh I'm going to do a course on this and a course on this environment and I'm going to go to DOC and I'll probably stay there for six months" and I said don't do that, don't go to DOC, you go home and look at what situation is needed in regard to your home in your area and then start working on that issue and start doing what needs to be done in your own area. Otherwise, that's the key, wherever you are from, look at an issue that is affecting home or where you live and take it up and deal with it that way. Because if you get caught up in the big picture, it's just going to get diluted. Start from there and stay there, start where you are and where you belong. You'll get more passionate about it and what best place to start is at home in your own area doing something that you know, that you know that you can be effective in.

Guy: So what are some things you think the general public can do for promoting conservation?

Davis: Well just like Raglan, hold a really good Māui dolphin thing, really good. That's a really good effective way of promoting the area. Having some sort of information, that's key, that's available to hand out at events or through town. I think we're too caught up in Forest and Bird, WWF, Department of Conservation, see they're all in a box. There's no room to connect them, so they need to be connected like that. Once that happens things will move, without, nothing will happen. They're competing with each other instead of looking to each other and what strengths they have, ways to deal with an issue and say look; you take care of that because that's what you're good at.

Guy: Why do you think these organizations are doing things separately still and not working together?

Davis: It's because they haven't had that grounding, they haven't had that foresight. This is our funding, this is what we did. It shouldn't be about that, it shouldn't be about funding, shouldn't be about money. It should be about this is the issue, how can we sort it out together, and then put what you can to help sort it out. Otherwise this company can sort it out, that's why we're still in this dilemma. Give it back to Māori, can also do that, give them the resources that they need, it will be sorted tomorrow.

Jess: So who do you think are the key people besides Māori to get involved in this?

Davis: The key people to get involved in this The United Nations, they need to get involved in this. The outside groups which are already involved in this would be other countries. Say look, that's not good enough, our reputation is on the line now New Zealand's reputation of clean green energy is on the line and once that dolphin goes, we've got no credibility, nothing. China's doing better than us, how bad is that? That's bad when they can save the panda and we can't even save the dolphin. It's pretty bad and it's pretty sad, it is really sad. We're in a state where, this is pretty sad.

Lindsay: I have a quick question, so going back to what you said about handing out pamphlets, and stuff, if you could write on those pamphlets key things that people in the community could do just every day to help save the dolphin what do you think some of those things would be?

Davis: On a pamphlet?

Lindsay: just like anything, suggestions for the general community to do.

Davis: I think just to join a group that you think is going to help, that you know is going to help, not a group that is just going to sort of ... You'll get a group that's going to do something and join that group, and push, push really bad. Another thing on pamphlets would probably be make sure they have dialect on that, English, and whatever that area is, respect the culture of that area and express their culture in that pamphlet, not just English. If you're from Canada and there's some Canadian [] ask them if you can have that dialect on that pamphlet so you're respecting them because you're opening the door then to that culture and learning about that culture. The second thing would probably be to hook up with other groups online, with websites, other groups. Connect into them and see how you can help them and they can help you, interact because the technology's there now so build. I'd like to see a Māui dolphins group in America. So you know, make those connections, you fellows have more people than us, we've only got 4 million, you've got 55.

Jess: We've got 300 million

Davis: We'll be able to change the whole world. Those sorts of things, really look at the way to promote things and how you're going to promote and the people you're going to promote it with. Make sure they're real people and not plastic people, you don't want plastic people, real people, that breathe the air, that swim in the water, they catch the fish, they're the people you want to connect with. If you fellows aren't doing it, you'd better go start, go catch some fish.

Guy: Alright, so what do you think DOC specifically could do more to protect the dolphin and where are they lacking?

Davis: Got a bleeper? Oh, DOC is restrained by a lot of thing, and by their contracts. So you know they sign a contract and straight away they're restrained. I think they should have an arm in there that's specifically Māori driven, Māori orientated, no Pākehā in there. I'm pretty white myself but it helps to have the kaupapa of that. Even though they have Jack, that's good, they have him, that's good but they need to have a department that's solely that way. And then things will move. You know if you have things like budget restraints, sorry only 10 people of this, sorry that's got to be cut and that's what's happening to the Department of Conservation. That's getting cut so they can't do nothing, where we need a department like that in the department that has no restraints and they can lobby for more money from our own whānau from our own people that have the money now. Ok Jack you alright?

Jess: Why do you think this area along, well Raglan included is important specifically in Māui dolphin conservation? And how they're different from say like people in Wellington trying to do something?

Davis: Well it's our link eh. It's our link. You say those videos. It's not our house we live in that we mow our lawn with, it's our [responsibility] to go further back than that. It's from the [that came over and the dolphin that helped us to get to where we got to so it's that link to our ancestors, our link to our environment. Even when you hear a [place] it's always the mountain, the water, and then you. It's never you the water, the mountain, it's always the mountain, the water, we're last, so we've got to respect that. That's the respect we hold for those things they're not there because they're there, they're there because we're there that led us to be there, let us be there. They're our kaitiakis so that's our spiritual link you know, people in Wellington don't have that. They sit at a desk, they tell the people in Kawhia what to do they don't want to work, they crunching numbers and typing into a computer.

Guy: So from all these interviews, we really noticed that Raglan is a very conservation minded community itself, and they're really connected with everyone in the community,

but other west coast areas aren't as connected, why do you think that's the case for conservation efforts?

Davis: because they've got good people here. They've got the resources of the people here, they've got ... And when you look back look at their kaumatua is from here, I don't know if you know Angeline? That's the same thing, it goes back so now that they've got a good amount of other people here, June here, and Malibu, they're going to make sure that message is there so you can't beat it. It's the people that you surround yourself with that will help, that's why this whaingoroa is so strong. We're not there yet, but hopefully in five years' time we will be.

Guy: Do you think there's ways to strengthen the other communities along the coast to help get conservation efforts where you Guys are right now?

Davis: There is, there always is. It's through the kaitiakis there's a network of kaitiakis through each Mauri so those Mauris even though some of the Mauris are at a different level, there are kaitiakis there that will help and promote and show what they're doing to help those ones, to know and to guide them so you know we're way ahead of people in other areas and we make sure to show stuff like this we've got promotion, like you know we we're going to bring our promotion board. We've got promotion boards, things like that but we have to really look at what we're going to do this year and start pushing for what we're going to do this year. So I think our big push will be 55 and counting, that's going to be our thing, it's just going to be a blank doc with 55 and counting. Just make it easy, make it simple, too much paper is too much paper. It's good for burning a fire. Keep it simple, keep it connected and keep it relevant to what it is and then you can't go wrong. So that's all I can say.

Guy: So go ahead

Lindsay: So I know you kind of said this in bits and pieces before, but would you mind reiterating specifically what the Māui dolphin means to you and your heritage because I think it is really something special that I'd like to hear again if you don't mind?

Davis: It's a taonga, it's a gift, it's a gift, it's a very special gift. I'm not saying that just the dolphin is a gift, even other things are gifts, but that dolphin is a special thing. We know dolphins are special, doesn't matter if it's a bottle-nose, dusky dolphin, these dolphins are on a higher plane and a higher level spiritually and we've known that it's proven that to us because our ancestor wouldn't have been here and it guided us here safely. So it's you know what they say, an indicator that something's wrong and we say if there's something wrong, something will show up and say look, something's not right. Just like anything, I had

a dream of my mom just a week ago, and I knew straight away when I woke up I'd be expecting a call, and it happens you know, she rings me up. I know she's going to call and you fellows will probably have those sorts of intuitions, those sorts of things. These are spiritual links and guides that we have to know that we cannot afford to lose them. If we disconnect completely, then those sorts of spiritual links will be gone. And that is a spiritual link from us to God he has given us things that we shouldn't be messing around with, and once we mess around with them, we will suffer. Our kaitiaki from [location] right to [location], it's in our bloodline, it's in our line, and we follow the same traditions as them to protect to cultivate, not to destroy, to enhance, and to better, not to take away forever, that's not the way it is and it never should be that way. Unfortunately, human beings have gone that way and we're not listening to our spiritual connection. But you know if you took our air away from us for five minutes, we'd be dead. We can't see it, but we know it's there. So you know, that spiritual link is the same, you take that away from us, we're going to die, another piece of the human race will die and we won't become who we ought to be and who we should be if we just let things like this happen. It's not the way it should be happening.

Guy: You said, do you think you have a stronger tie to the Māui dolphin than the Hector's just because of what's going on with the species or are you just as connected with that species as well?

Davis: Wouldn't have mattered if it was a dusky dolphin, wouldn't have mattered if it was a bottle-nose dolphin it would have been the same because the lines are genetically the same, a cousin to that to that to that. So wouldn't have mattered what it is, but because it is a dolphin, we will fight for it right to the end. We will fight for it no matter what happens, no matter where it goes, they will always say we fought for the protection of that dolphin and they can't say you did nothing. We'll say look we did something so don't tell us what we didn't do.

Guy: So you kind of elaborated on some of these tools the Māori people could do to help save the species, could you elaborate a little bit more on what exactly they would do.

Davis: More videos within our own maraes, more of what we do. When we have meetings, we talk about these issues and say look this is what's happening, this is where we want to go, this is how we want to do it just like we shut off our area, we have to go back to our marae and ask the people, we want to shut that area off because this is what happened. We have to go back to the marae and say this is what we need to do, are you ok with this? And they said yes, and then we go and do what we have to do, that's what the kaitiaki does, he's the connection between the marae. He's the one that has to go and say look this is what's happening and do what's necessary because our whānau in town now and when we used to

be on the marae, we used to live the kaitiaki way it was amazing. I never felt any, I can't even express the feeling you had when you looked at, everyone was one, everyone shared everything, and everyone didn't have to worry about anything because everything was there, we just had to go get it. Now that that's taken away, it's worrying, it's a concern, what's happening, we could go and get mussels, now we go there, there's no mussels. We could go get flounders, and now we go there, there's a commercial fisherman in there taking everything. What's going on? Even though our whānau are in town, they do come back we do sit down and talk as a kaitiaki, I go there and say look, this is what's happening at home, bring them up to speed and make sure they know what's going on and from there they tell me what to do.

Guy: Alright, so you gave us this pamphlet, not this pamphlet, this whole thing right here. Could you explain a little more about what it entails?

Davis: It's our right, basically we're saying to the crown that you've got to do something, our lawyers are. It shouldn't even get to that, that's ridiculous. That's where it's just ridiculous, it shouldn't even gone that far, so it shows how crazy it's getting, now our lawyers are involved. The amount of money I've spent on that affidavit, I could have got a boat, I could have been out there on the water checking, making sure there's no trawlers coming in because we're telling them to get out, and we would get them out of there. And like I said it's just a whole bunch of bureaucracy gone mad. It's like the story the emperor's new clothes. It's just like that and then one day he goes down the main street and then a young person says hey, you've got no clothes on, and then he realizes he's got ripped off by these hustlers that have said aw shucks, just like the Māui dolphin. Wait until it becomes extinct and then we say oh it's gone, too late. But we have to go through that process to make sure it's documented and recorded, that's the only reason why we've done that, because it's not going to do anything. It's another process that leads to nothing, a recommendation, and that's all it's going to be, but we have to follow that process that's a waste of time, a waste of money, but that's the way it is.

Jess: So you said after putting in this claim you would like to go to the UN?

Davis: We will be going to the UN straight after that. Once the judge calls it, we will be going to the UN.

Jess: And what do you hope that they will do?

Davis: They will represent us on our indigenous behalf. We are the indigenous people of our area we are losing this tonga, the crown hasn't listened. We don't want this to happen again, and we shouldn't be in this situation. So that's the next step after this.

Jess: Did you have anything else to tell us that we may have missed in the questions?

Davis: Listen to your old people eh. Listen to them, the ones who are wise, not the ones that are unwise, don't listen to them. Listen to the ones that are wise and you'll see the way clear. Get a good education, a proper education and utilize that education in a wise way. Look after your lands, look after America; it's the promised land ain't it? It is the promised land no matter what's happening to it. Never forget that because that's what happens when we get discouraged and we get pushed down because America is the promised land and it's going to be blessed I tell you. New Zealand is a land that heavenly father, well I say heavenly father, they say the great spirit has blessed us with an abundance, but you can see what we do to it because we're on the wrong track. Unfortunately it hurts my heart, my heart is saddened but I look to my daughter, I look to her and all she says to me is I'm going to get a farm dad and I'm going to have animals, and you can live with me, but your house is going to be over there. I don't mind if the power goes, don't worry, I'll be safe. but you know, it's the next generation that we have to protect, its them, and we have to teach them what's interesting that your resources, they have to cater for everyone but mainly that it goes to them and they learn. She knows about the dolphin, she know about what we do and this is her taonga, it's a Māui dolphin, so when I go it's going to be hers because her name is [daughter's name]. See these are the things we have to do so that the next person. I wouldn't want her to do what I did, that's her choice, if she does it fine, I don't mind. It is our home, we will be buried there, at the end of the day we can't afford to lose it. We can't afford let things happen that shouldn't happen. A lot of things are still happening that shouldn't be happening, that are going to happen but at the end of the day that's up to us who are here to do it. When I see you fellows here, I think the worlds in good hands. We haven't got the technology that you fellows are going to have you fellows really don't know what you fellows are going to get. So use it wisely and use it for the purpose that the creator has given it to you for, the right one.

June: If you had the power and the control to turn the Māui dolphin situation around protection of the waters would ban the commercial fisheries would be one of the thing that you would put in?

Davis: Definitely, what I would do is I'd say 20 nautical miles fish out that way. 20 nautical miles is nothing. So that would protect the fish stocks. The benefits it would have within six years would be enormous.

June: Anything else? The commercial fisheries anything in terms of the land use?

Davis: I'd make sure that every person within their area has a person that protects those areas, their streams, monitoring, checking the bird life, that's what we do all those on the

motoring side of things, making sure the birds are there. The tuna, making sure the tuna are there. Looking at those sorts of things, replanting, restocking, having areas where you can't take out, you have to put it in. You know it's a restock planting. There would be [specific type of mussels], those areas you've got to push restock, and you can't take from them, you have to give back to them. So we'll be looking at all of those things shortly, those restocking and they're only for restocking and we have that opportunity and the technology to do all of that now. And then phase it further out, if anything's getting caught, then step out a little more. There's plenty of fish out there, I went out 60 miles, and the fish were jumping in the boat.

Interview #7: Christine Rose – Māui and Hector's Dolphin Education Action

February 10th, 2015 at 2:30pm

Guy: How have you been involved with the past with the Māui dolphin and Māui dolphin conservation?

Christine: I've been involved for about 15 years. And in lots of ways through time. It is quite a creative process. I was a local government councillor when I first discovered Māui and Hector's dolphins. And I did that by going on out on the boat with them and swimming with them and kayaked with them or just watched them from the land. And so that love and sense of responsibility has translated to you know like a compelling desire to do something about protecting them. So when I was on the local council, I would do things like public awareness campaigns in the local newspaper where people could fill in the details and send them off to the government to lobby the government for better protection of the dolphin. And I also would talk about the dolphins at local government conferences and we would have agenda items on the council about the dolphin and you know get the council to take a position on conservation issues so that translated because I was in local government for 15 years. Then I was on the regional council, which is the next level up, which also had responsibilities on coastal management. I made sure that was in the forefront as well. So again, we used contacts that we had with the MPs and also the community so you know a part of this has always been like I ran a short story and poster competition where we invited people what the Māui dolphin meant to them and we got like five hundred and sixty entries or something with these incredibly honest and heart felt and very beautiful and culturally important messages came through. You know I still think there is still an opportunity for capturing those messages because they are very powerful. And you know I had granddads telling stories of how they would tell their grandkids about the Māui dolphin becoming extinct. And I had little kids telling me stories and as part of that has been the personal stories that everyday New Zealanders have about interactions with the dolphin in their life. And so that's a big part of every bit of campaigning I do with the dolphins in particular making sure that there are opportunities for people's self-expressions in a creative way about what the dolphins mean to them.

And so the current things that we do we go to markets and we go t-shirts and we invite people to become dolphin defenders. In my time as a campaigner I've seen it go from no one knowing what a Hector's dolphin let alone a Māui dolphin was (and also that distinction hadn't been made at that stage) but now you know like last year the Māui dolphin was on the political agenda for the first time. And even a decision that was made by the council, the Auckland council, last week. Now you know it's incredible for me to see that that local government now, particularly in Auckland, is infused with a baseline agreement, a consensus, that the Māui dolphins need to be protected.

And so you know because my background is political science and as a policy maker and an advocate seeing the way that art is vehicle for public participation and public recreation, both values. Education, you know, we go into a lot of schools and stuff and we speak from

the heart and also talk to anybody possible about the dolphins because we just love them. And the emergence of internet campaigning, all those things and getting it on to the political agenda. You know there is this whole contingent bit of magic that has led to what we have. We were involved with the protection in 2001, the emerging protection in 2005, the marine mammal sanctuary in 2008, and the protection that has come in since then for what it's worth. And so you know I really believe in what we do and the dolphins, Māui and Hector's aren't safe yet, but they're a lot better than they would've been if it weren't for you know the energy that we put in to it, rewarded.

And you know me and my husband see Hector's dolphins all the time because we are always out there looking, you know this is in the South Island in particular and so it's also a way of giving back for the blessing that we have, to share the planet with these beautiful creatures.

Guy: So you are a part of an NGO or something about Māui and Hector's Dolphin Education Action, is that correct?

Christine: Yeah so we have not been formalized for very long and you know the rest of the time it was just us trying to harness whatever energy that we could and working also with scientists. Since 2012 I think we've been an incorporated society and we can't register to be a charity because there are rules about being a charity because we advocate too much, we are too much activists and we are too much advocates so we are not allowed to be a charity but we are totally voluntary, nonprofit and we work by going to events, in particular marine related or at the coast in the dolphin habitat and we sort of have a loose net with people around the country with our people doing this. We take our merchandise and provide art opportunities where people can paint a dolphin, a Māui dolphin or Hector's dolphin, and we hang it on a net while it dries and they can come back later and take it home and we've been doing that sort of thing for a long time. But then we also know that in conservation psychology and the science of conservation psychology, one of the most effective things in terms of building empathy and getting behavior changes by people being able to do art about the environment and then being able to take it home. We know that what we do works and the people love it.

Guy: Wow, yeah that is pretty interesting.

Jess: Yeah so what do you see as the biggest threat to the Māui dolphin?

Christine: We believe that it's gill nets and that is an issue more significant than the other threats but the other threats because you know the dolphins can sustain so few human induced deaths that the other things are very important too and should not be trifled with. So you know sea bed mining, and oil exploration and associated activities like seismic testing, pollution, toxoplasmosis, but primarily gill netting.

Jess: Okay and what do you see as the biggest obstacle to promoting Māui dolphin conservation in your community?

Christine: Probably politics, politics of fishing. I mean we know that our community has really embraced Māui dolphin and we would like to see that more in the South Island and also local populations although we know that people really love them there too but it's a slightly different relationship. People...and surveys back this up actually, nationally the people want to see the Māui dolphin saved and are prepared to pay more tax or forego some types of fish or you know do what it takes to save the dolphins except maybe change the government though, and that's what it's going to take.

Jess: So you think the current set net bans that are in place are not sufficient?

Christine: No and for a number of reasons partly because it's such a patch work and doesn't cover the whole dolphin habitat and doesn't cover all net related threats in particular so the fact that trawling is allowed within two nautical miles from shore and most of the Māui and Hector's habitat, provides a clear risk and that has been scientifically established. And agreed by government and scientists. There's no enforcement and compliance - you know they haven't even got, all those boats don't even have observers so how would they know whether existing policies are being complied with. And it doesn't go far enough anyway. So you know it's better than it was but it's still not enough.

Lukas: So in your opinion how do you think the Māui dolphin really connects to New Zealand culture?

Christine: Pretty significantly I think and increasingly through time. Obviously, Māori had a significant relationship with them and that is reflected in some of the terms that they had for the dolphins, tutumaerikuri and upokohe and popoto, you know they all have significant meaning not only historically but in a contemporary sense and you know with those translations like "lifelong friend" and "special ocean dweller" that they reflect the relationships that so many of the coastal community have with the dolphin and particularly because the dolphins are so accessible you know you can swim or surf with these dolphins or kayak with them throughout so many places around New Zealand it provides a very intimate relationship. In a maritime culture of New Zealand, we've taken a lot of identity from our relationship with dolphins and normally that's pretty grim for the dolphins, and Māui and Hector's are no different. It's also a living relationship and the fact now that so many people know about Māui and Hector's and we've built up a cultural body of knowledge as well about sightings and experiences and even the campaign journey and even the scientific journey. You know Liz Slooten and Steve Dawson they just celebrated 30 years of studying Māui and Hector's. And you know for me as a campaigner, 15 years and it will be for life. We are never going to give up on these dolphins. We are seeing habitat contraction, diminish the species and the subspecies but you know, we know that this is more important to New Zealanders than ever and seeing this real movement emerge has been - you know- there is a tale to tell in all of that.

Jess: Wow, so because we are trying to make children's book, do you think it is important to get children involved with conservation especially the Māui dolphin?

Christine: Yeah for a number of reasons. Māui and Hector's are so beautiful. You do not get anything more beautiful than a Māui or Hector's. But also kids are so open and there is an opportunity for life long change and forming a positive direction with conservation and their relationship with the dolphin and that empowerment and the responsibilities that go with it. And all that because kids can influence their parents and their communities and stuff like that. We've seen that in the work that we've done with school kids. In particular, across the Auckland region we've spoken to so many kids and seeing schools take it on and very beautiful and you know there is so much potential there.

Guy: So what sort of conservation education programs could be implemented within the schools to help protect the species?

Christine: Well there was a WWF Education Kit which was quite good. I think they used to employ people to go in the schools with it on a limited basis and that was quite worthwhile but it wasn't sustained over a long time like those people are not still doing that. So you know there needs to be a lot more of that sort of thing. And I think that it is important that the science is correct, there are lots of enthusiastic people but whether they are actually correct in their messages. We all have to be careful about that, being correct. But you know I think that there's huge scope of creativity to. Like for example a local school near me, and we are on the Māui Muriwai coast so you know the Māui dolphins are seen on these beaches and kids in the school have seen them so the dolphin has a special place in our community anyway, kind of like Raglan but Raglan is a little more laid back and alternative. Me and a friend of mine went to go speak to a part of the school about the Māui dolphin and they were doing an economic theme for the semester so they focused on how the dolphins and the economy could coexist. And this sort of project is for a school so it wasn't about macroeconomics. But what they did was create, you name it if you could create it about a Māui dolphins they did it. They painted rocks with the Māui dolphin, they made biscuits into shapes of the dolphin, they made cushions with conservation messages. You know I've got one here next to me that says "Our Flipping Friends Need Us" with little printed dolphins on them and "Stop Your Netting Or Else" and they've got little dolphins stuck in nets printed on them. So they are incredibly creative. They made polymer clay dolphins. And they sold all of this stuff at Māui Dolphin Day and made \$6000 and donated that to our group. So we use that for more art activities and spreading the word and brochures and things like that. But you know I'll see those kids, you know, they will come running up and talk to me about the dolphins. I see them in the community and that influence you know, learning about the dolphin, being inspired in their community, and then having that opportunity to translate it into meaningful actions, you know that's going to stay with them forever. I see it in their daily lives. I guess it is sort of contingent and magical thing that is enabled when you get the ingredients right.

Jess: Wow, so the children are receptive to the Māui dolphin.

Christine: Incredibly! You know you see that with people and dinosaurs? [laughs] You see that same thing with people and dolphins. When I first campaigning for Māui and Hector's

dolphins, the fishing community was pretty hostile and people didn't even recognize that we had this special little dolphin and now I gave like a real quick and prompt to talk at a festival where we were doing our arts and selling t-shirts and things and so gave this quick little word about dolphins and how we could help them and this guy looking at me, sort of looking like a cowboy he came out of the crowd and shook my hand and said "you know I've been living on the coast for thirty years and you've inspired me more than anything I've ever heard and I really like what I heard and thanks for bringing it to my attention." And then even this other day when we are having this discussion on deep sea oil, this councillor was imploring that all the other councillors to be a dolphin defender! [laughs] So you know, it's pretty cool!

Lukas: Wow. So what do you think are some things the general public could do to help protect the dolphin?

Christine: Lots of things. So non-consumption, being aware of where your fish comes from and what's being caught. That's the hard one and is probably the greatest challenge because the default position for New Zealanders is to get fish and chips no matter how bad they taste or how bad they are. [laughs] But picking up rubbish on the beach is a hard one too because that's a cultural thing that's learnt. Having greater environmental ethics, that's a hard one too. Talking about the dolphin, spreading the word, voting for a government that would protect the dolphin. Unfortunately, people don't put that as a higher priority than keeping fishermen employed. So you know I mean think ultimately because the science is clear about the situation with dolphins that there is so few of them, Māui in particular, but the same situation will arise with Hector's and there subpopulations you know what's happening with their subpopulations as they having less genetic exchange. And so Māui will be the first ones to go but it's so drastic that the fact the government isn't doing more about it reflects the reality. You know that reality has to change but it's not going to change unless there it gets even more critical and you can't get any more critical than it is. I ultimately think it is going to take more dolphins to die before the government actually does the next step of protection. If more dolphins die, that's another ringing of the bell, you know another tolling of the bell for the dolphins, so you know it does not look that good I don't think.

Guy: So what are the next steps the government needs to take to help save this species?

Christine: They need to get the trawlers out of the habitat and they need to get set nets out of the habitat where there is still set netting. And this is the challenge because Hector's were found in set nets along the east coast last year so the fact that we've got dolphins right around New Zealand on the east coast where they have absolutely no protection. There were two [Hector's] killed in Tasman Bay just late last year where they had absolutely no protection. Where set netting is allowed, they need to remove set netting. Where trawling is allowed, they need to remove trawling. They need to I think stop seismic testing, deep sea oil. They need to protect the harbors and you know they shouldn't have ring netting since they introduced ring netting in Manakau Harbor. So there is a lot of things that they

have to do. But the first step would be to get the trawlers out of the Māui habitat and the set nets and trawlers out of the Hector's habitat.

Jess: So besides government policy changes, what other things do you believe DOC can do to help protect the Māui dolphin?

Christine: Well I am aware and appreciative of the research that they do. The monitoring infrastructure that they provide and the reporting system, the fact that they make the necropsies public. They maintain the incident database. That's all very important and helps maintain confidence. And their transparency, for some people it doesn't, you are never going to please everybody, but in my opinion that stuff is very helpful. I know that there is a lot of goodwill there but I know that DOC is ridiculously underfunded and it's one organization sort of against the organization, which is MPI, and that economic imperatives will always dominate over conservation ones and so fishing will always be the master. But I think that DOC, their earnestness, their bureaucratic enthusiasm is to be commended for what they do despite the challenges that they face.

Lukas: So who do you see as the key people to get involved with this issue?

Christine: I think everybody matters. Everybody has got a role to play. My wish would be that we have a nation of dolphin defenders, four million dolphin defenders, because they are our responsibility. And I think that that's possible. We've already reached incredible awareness about the dolphins and I've seen it certainly increase in the time I've been campaigning. So we all have a responsibility and you know we should be celebrating. Africa celebrates its native fauna. We should be celebrating our most charismatic of creatures.

Guy: So what do you see as your future involvement with the Māui dolphin?

Christine: I see my future full of Māui dolphins! [laughs] I see a future where Māui and Hector's are abundant. I know that they can recover as you can tell it's a really big part of my life and you know so I spend lots of time traveling around New Zealand talking about the dolphins and handing out brochures and watching from shore to see where I can see them which is most places. Observing the way people interact with them and their attitudes towards them and to the sea and to the risks that the dolphins face. That's really interesting adding that 'mystery shopper' observer effect by going to places where people are still setting nets even though they are banned and people having stories telling me when they used to get caught in nets. It's really interesting. So I will keep traveling around and talking to people and experiencing the dolphins and campaigning for them. I know it's going to be a long journey and I hope that we can save at least Hector's if not Māui.

Jess: Thank you so much for this information. Do you have anything else you would like to express to us?

Christine: I think that you know this isn't just an issue in New Zealand. Obviously, these dolphins are part of the global heritage and part of a global treasure. I know that there are concerned people that are aware of it around the world partly through the IWC and

scientific organizations. There is wide spread interest into what happens to them. The magical thing about the dolphins is they touch people on a personal level and sort of on a societal level and a community level and a cultural level and also in the scientific realm. So there is a lot of opportunity for dialogue and I think for ownership there. You know New Zealand has had great success at bringing species back from the brink and this is a case that could be no different. And seeing the delight and the love that people have for them and seeing how lovely they are. It's a real wonder. When explorers came here, they were the most common dolphin but now most New Zealanders have never seen one. There are so beautiful and so friendly. They are just gorgeous! I hope that you guys do ultimately get a chance to see them.

Jess: Thank you! We hope so too! And thank again so much for you time, we really appreciate it!

Interview #8: Aaron Laboyrie- Representing Commercial Fishermen

February 17th 2015 @ 4pm

Guy: What is your involvement with Māui dolphin conservation?

Aaron: Well plenty of people out here would be lucky to ever see one while I've got 25 years of fishing out here and I could take you out tomorrow to exactly where they live. I actually remember catching one back in the 1990's in a gill net. Todd Sylvester who was with the Minister of Fisheries, it was then the awareness of them was brought up. He did a lot of research on them. When I read that [the Raglan Chronicle newspaper article on our team], I thought well they should talk to the people who know some more about this. So that's when I made the call.

Guy: Well thank you. Alright, so what do you see as the current state of the Māui dolphin? What do you see as its biggest threat?

Aaron: Biggest threat right now. I think it's human and natural really. The day after I read that [article on the team] in the Raglan Chronicle, I saw an article about 18 orca swimming up the Raglan Harbor. Everyone loves the orca. But those orca, when they swim passed the Māui dolphin they probably swallow them whole. You got a pod of 18 orcas that swim up and down the coast, you can't tell me when they swim passed the Māui dolphin oh well I will just leave you. We've got a pod of Māui that lives right outside the Raglan bar here.

Guy: So you think the orcas are a natural predator to the Māui dolphin?

Aaron: Oh they couldn't help themselves! They'll swallow a seal whole and they'll gang up and take on whales. So it's not like you will find remains of the dolphins. So you can't tell me that if there two or three of them [the Māui dolphins] that they are not an easy target for the orcas. Especially when the pods of orca are getting bigger. As well more and more sightings of great whites. There was a great white caught out here a few years ago that was over 3.5 meters long, another natural predator. I've got 25 years of commercial fishing up out of Raglan. About two years of that was running gill nets and about twelve years was running trawlers around the coastline. I caught one Hector dolphin in a gill net and that was back in the days when we could run our gill nets off the back of the beach. So yeah gill nets do catch them but they put gill netters so far out now that the Hector's, well I'm used to calling them Hector's but I mean Māui, don't go far off shore maybe three kilometers they are really a dirty water dolphin. They only hang out in the dirty water so by poking the gill netters to whatever it is seven kilometers you are well outside their habitat.

Guy: So do you think they are hiding in the murky waters from these predators?

Aaron: I don't know if it's that. Maybe they just like to hunt in the dirty waters. Because they seem slow, when we caught one they just looked really soft and mopey, when you just see them move they are not an agile animal like normal dolphins. So maybe they like the dirty water because they can catch their prey in that dirty water. I've done trawling for

over twelve years and I could honestly say out of those twelve years I've never caught a Hector's [Māui] dolphin. I have caught common dolphins, usually one or two on a bad year some years there will be nothing. And I could say for the three trawlers that worked out of Raglan we've never caught a Māui dolphin before. Back in those days, when I was trawling there was nothing stopping us from towing our nets along the coast. During that time, we were pushed out a mile, so we did our trawling outside of that mile zone to help protect them. But we've never caught Māui. I think in Raglan we have a real issue with our sewage. I would reckon that we would be pretty mutated if I swam out the back of the Raglan harbor with the outgoing sewage. Raglan during the outgoing tide pumps out sewage. You still can't tell me that if we swam out there every day that you would not end up with sores and scabs. So that's where one of our pods of Māui live, right along the back of the bar. Most of my Māui sightings have been within 500meters of shore or around behind harbor bars

Jess: So what do you see as the biggest obstacle to Māui dolphin conservation?

Aaron: Biggest obstacle. Changing people's ways maybe. To me, from the Raglan side of it if people are really worried about the Māui here that they should be looking at, they've pushed all the fishermen out they cried but they had to do it now that the commercial fishermen are pretty much extinct they can't operate properly to catch what species they were targeting and with what limits they've been given now. So I think the next thing to look at would be to look at the sewage side of it. So the biggest obstacle there would be probably getting people in councils to make change. You know, that's money.

Guy: So in your opinion, how does the Māui dolphin connect to New Zealand culture?

Aaron: Most probably, 99% of New Zealanders have never seen one. So to me, that's only because of that awareness that was brought through such as Māui Dolphin Day that I think there is a connection. It's not like a common dolphin or a sea gull or a wood pigeon that a high percentage of people of seen. So I think it's only the awareness has brought this because of the groups that actually have been doing it. The last twelve years I've been running a charter boat out of here in one of the areas that we fish quite regularly. It was amazing how many people would see them on my fishing charter. I would always joke with them that I would charge them extra if they wanted to see a Māui dolphin. [laughs] So yeah and the biggest misconception quite often would be when people see a common dolphin they would say oh look a Hector's! So at the end of the day there's a lot of people out there that wouldn't know a difference between a common dolphin and Hector's because they haven't been around them.

Guy: So what do you think are some of the things the general public could do to help protect this species?

Aaron: I really think there's got to be more research into why they are actually dying. I would love to see the actual genetic makeups from the ones down on the South Island [the Hector's] to the ones up here [Māui]. They say they are different but I would really love to see that DNA that says are they really actually different dolphin, are they actually

disappearing or just mixing with the ones down South. Like you go down south to Wellington and down to the South Island you start to see hundreds of them. So I don't know what's changed because people talk about how there was huge numbers out here originally. Commercial fishermen haven't killed them all, there's no way. People like to blame the commercial fishermen. But yeah I don't know what could be done or what people could do really to help.

Jess: Okay, what do you see as the key people to involve in Māui dolphin conservation?

Aaron: Scientists. Get true facts. Don't just keep blaming fishermen, blaming sewage. I think they need hard evidence to why. Maybe some of the biopsies samples that DOC takes could help with that. , To see the make up to why they are different. So yeah I would love to see those facts. I've mainly worked with Gary Hickman from the DOC Hamilton office

Guy: So when you do see these species, do you report them to DOC?

Aaron: Yes but it was always the same pod that I used to see. So that's why DOC used to come with me to do their samples. There are key places where they used to be but they do move up and down the coast a little bit. But no I didn't report them all. Because the ones I did see they know were the same ones I saw last week or yesterday.

Guy: So how often do you actually see them?

Aaron: Well I gave up fishing last year. When I was chartering in one area, I would see them one in every three days there.

Guy: Wow. What is the reason behind you deciding to quit your fishing business?

Aaron: 25 years I just got over the responsibility of it. Fishing out of Raglan here, the bar does a hit after a while. Especially taking people out. Responsibility. I got to the stage that I couldn't sleep at night wondering if I made the right call about the weather. East coast you don't have a bar to worry about unlike this coast. It was political too. Like if I wanted to clean my boat, those barnacles everything on there, I just wanted to clean them off my boat and wash them back into the sea. But there was always someone who wanted to take a water sample of my boat to check I wasn't polluting. The boat cleaning product these days is so environmentally friendly that things grow on it rather than kill it. It just got harder and harder to do things down here. Everything just got harder. Plus my kids, I wanted to spend more time with my kids.

Guy: Make sense.

Jess: Why is Raglan important to Māui dolphin conservation?

Aaron: Well they do live right here in our back door. So that's a good reason for Raglan to get involved.

Lukas: Going back to the sighting thing, do you think that most people who do see the Māui dolphin know that DOC wants them to report them?

Aaron: I think yeah there is plenty of information put out there at the fishing competitions because it is really mainly fishermen that see them. Not only commercial fishermen but amateur fishermen as well. So again, I would say only half the amateur fishermen would know the difference between a Māui dolphin compared to a common dolphin. So yeah, you don't get many out there that just go boating. It's not like the east coast where people are on the boat.

Guy: So how do you think DOC could promote awareness of these species to these people that don't know?

Aaron: I think its ignorance really. Like they put it out there. They are on the brochures and all that. But when a dolphin swims past the boat and you are cruising at 20 knots they go oh look a Māui when its really common dolphin. They really don't know. They are just quick to see a dolphin and call it a Māui. I don't know if there's a real interest in that sort of thing. And I think that is where some of the DOC reports have come in, when people are reporting they saw a Māui dolphin nine miles off the coast. Well, I would be a 110% sure that it was not a Māui dolphin. Because over 25 years, I've never seen one that deep. Maybe once I've seen one at about four km off the coast. Along the back of bars you get that dirty water during the outgoing tides. I think they have done all they can to make people aware and the ones that are really involved in the community that's trying to save them.

Jess: So another part of our project is to create a children's book, do you see it's important to involve children in conservation about the Māui dolphin?

Aaron: I was going to say you are fighting a losing battle. But you can bring awareness to what the Māui dolphin is and what they are. But I don't know if that's going to help. I think in a children's book it would be good for children to know what the Māui dolphin is, where they live. . I don't know anything you say in a book is actually, other than to not set nets but the fishermen already know this. I don't think there's much influence that people can do, other than making it a kids reading book, like reading about the Moas. Or other species, just showing kids what's there and in our ocean. I was saying on the phone that I saw some white whales out there about 10-12 years ago. There must have been a dozen or fifteen of them. And I had one of those throw away instant cameras and they were beautiful in this luminous blue water. And I didn't realize, I should've taken photos but if I did take photos all you would have seen are these tiny little things in the waves along way away and you wouldn't have even noticed. And when I got back I spoke to DOC, I spoke to a museum, and they said there is no such thing as white whales along New Zealand waters. Another commercial fishermen seen these white whales off the Vēdi Canyons, which is forty or fifty miles off of New Plymouth a year earlier. So if I even known that nobody has seen these white whales, like to me I just thought they were just some artic whale I wasn't really sure I haven't seen them before but for me to see them I thought other people would see them, and it's been in my head for years that there could be a whale out there like that that could have been called an Aaron's whale [laughs]. But that just shows you, we don't quite know what is out in our ocean out here. The only one that they know would be a beluga but they

said there is no way a beluga could come down but these were definitely true white whales. They were not albinos, they were only the size of the pilot whales. I should write a children's book on these white whales. [laughs] And that is the same thing as these Māui dolphins, I don't know if it would help any sort of way other than bringing kids aware because most kids wouldn't know about them. Maybe just a more awareness of what's actually out there and that sort of thing.

Lindsay: So obviously Raglan is very conservation minded especially with the Māui dolphin, do you think this kind of thinking could be implemented in other communities that don't have a Māui dolphin in their back yard?

Aaron: It's always easier to do when it's in your back door. I think if you can't see it then it's harder to get people involved in it. Like there will always be those people that have that green side to them that want to help to save them. But I think it's easier in Raglan because they are reported out of waters out here so it might be easier to get them more involved than people out in Hamilton or the east coast sort of thing that might have never seen them or heard of them in their whole life.

Lindsay: What do you see as your future role in Māui dolphin conservation?

Aaron: Right now would be just what I know. Bringing actual true information about what I've seen over the years and where they live and what I can see as threats out there. Now that I don't actually fish myself, well I do in my little leisure boat. But I am only out there a few times a year now compared to a 150 days a year I used to be out on a charter boat, doing it. So now it's more just about informing people. I get heated when I read comments about it and when these groups just point at the commercial fishermen because it's an easy answer to blame commercial fishermen. But there are no gillnets out here anywhere, they've wiped the commercial fishermen out so now they have to think of something else to blame. Start putting their energy towards actually finding out what is probable of orcas knocking them out and what they do then. It would be hard to see an orca physically tossing a Māui dolphin up in the air, they are going to swallow them whole, they are not going to leave parts. They are going to chop them up and eat them. But that's nature. The Māui must know when the orcas are around. The stingrays in the harbor they know, they swim right up into the shallow water to get away from the orcas. So the Māui must know as well and try to hide, so yeah I think it's got to be a little bit more scientific really. The right people have been on it, DOC and Ministry of Fisheries but it needs more.

Interview #9: Peggy Oki- Representing Surfers, Māui Dolphin Activists

February 19th 2015 @ 4pm

Lukas: How have you been involved in the past in Māui dolphin conservation?

Peggy: So it was about eleven years ago when I went to some even in the town hall and they had this life size replica of the Māui dolphin and I guess that was owned by DOC and they were trying to raise public awareness about this dolphin being endangered. And I didn't really realize how bad the situation was but I said oh wow this is the dolphin in New Zealand. I already had a great love for whales and dolphins as a surfer and an activist for them. And then the following year I saw the newspaper and I was in the back of the country in Raglan and there was this announcement about Māui Dolphin Day and I said "Oh that sounds great! I am going to go up and see if they need any help." And that was about eleven years ago and I went and offered help and I helped that day and each there since then I have been helping more and more. And doing for the cause. Coming up for ideas for the Māui dolphin basically because I am an environmental artist as well so different ideas and actions for people to take.

Jess: So what do you see as the biggest threat to the Māui dolphin?

Peggy: The biggest threat for over forty years to the Māui dolphin has been drowning in gill nets that are used in gill net and trawling fishing methods here. So that's been the hugest threat. But then now there is a threat of offshore oil. And if there is a disaster such as we had in the deep water horizon disaster in the Gulf of Mexico in the United States. But if something like that would happen that could potentially wipe out the entire rest of the population of what's left of the less than 55 Māui dolphins. Also there is seismic testing involved in looking for and exploration for the oil and that could possibly be disastrous as well.

Jess: So what do you see as the biggest obstacle to Māui dolphin conservation?

Peggy: I would say that the current government is not really paying attention to the requests to not only their own conservation groups in the country and voices of the citizens of New Zealand but the government is not acknowledging even letters from thousands of marine scientists from across the world The Society of Marine Homology, I'm a coalition member of Whales Need Us which is some of the largest conservation organizations in the world who are trying to end whaling, commercial whaling. I am a small organization myself but I organize some letter writing with letters of concern also which is huge, huge membership represented by that. Hundreds of thousands of members on all these different NGO's together. And also the International Whaling Commission Scientific Committee established here in New Zealand. So I would say the New Zealand government currently who are in power are the biggest block. They are not responding to requests as issued by the scientists, thousands of marine scientists saying "you gotta stop the gill net and trawling in their habitat and not do oil drilling and oil exploration in their habitat". So we need to get the New Zealand government on board with that or change the New Zealand government.

Jess: So what does the Māui dolphin mean to you?

Peggy: So the Māui dolphin is a very, cute little dolphin. I've never seen one but when I describe one I said it's the world's smallest dolphin and that the dorsal fin is rounded and they look like mickey mouse ears, and I've seen videos of them swimming around and it's a sweet little dolphin. According to some friends who are surfers, have actually see them while they were surfing and that's a really neat thing to me that these being in the sea, dolphins and whales too surf waves. And being a surfer myself I just think wow that is very cool! I hope they get to see a Māui dolphin or few. It is kinda ironic that there has been sightings at Raglan during Māui Dolphin Day and I am busy working at Māui Dolphin Day and they are out there and I've never seen one!

Jess: So you think it is important to teach children about Māui dolphins?

Peggy: Absolutely. I think it is important to teach children about all sorts of dolphins and whales and the numerous things that have been threatening them out in the ocean. I actually have a program that's called The Whale's and Dolphin's Ambassador Program to teach kids about all these different things. I call it Seation Appreciation and then also incorporating art and actions together for the kids to do. It is really important to empower children. But it is also important to educate the adults because apparently there's even a many, large number of citizens in New Zealand who don't know about the Māui dolphins.

Jess: Angela Prain was telling us about a program you ran with the kids at Raglan Area School. Can you tell us a little bit more about this?

Peggy: Angela Prain! Oh yes, sure. Basically it's a five day workshop and its four hours a day so it's pretty intensive. And the first half of the class each day is lecture period and then the second half is art activities and these are art actions of some sort, letter writing campaigns or other solutions that I have come up with to some of the problems. And there is just so many dolphins threatening dolphins and whales. There is the bycatch, fishing bycatch that is killing the Māui dolphins and Hector's dolphins and nearly 308,000 dolphins and whales drown annually as a result of bycatch and entanglement in fishing nets. That's just shocking to think of that. Because I have been working on the whaling issue for over ten years, and now there is roughly about 2,000 whales killed per year as a result of commercial whaling. And then you look at those numbers and you think oh my that is crazy. And there is a lot of other things such as the seismic testing, noise and pollution from the ships.

Guy: Can you tell us a little more about your Origami Whale's Project?

Peggy: Yeah! It has been activity for the Santa Barbra Whale's Festival. So in 2004, I conceived this idea for the Santa Barbra Whale's Festival and it was to collect origami whales as a an activity, get people to fold these whales, to raise awareness about commercial whaling through that and the goal initially was the traditional 1,000 as the 1,000 cranes in the Japanese folk legend. But then that year, I found out that of that actually 1,400 whales were in the quota between Japan and Norway so the goal became 1,400 origami whales! And then I was working with a couple other campaign coordinators with NGOs who were trying to end whaling as well. So people from all over the world were starting to send me origami whales because they put it up on their website. And when I got to the 1,400, one of the campaign managers said well would you like to meet the International Whaling Commission delegate of the United States with your origami whales and I said sure! And then I had to figure out how to present these 1,400 whales that would

be the most impactful way to present these made of paper. And I said Oh what about a curtain! So one weekend me and my friends stitched a curtain of the 1,400 whales. And then since then the numbers grew and there was not so much attention in the media about whaling so I decided in 2006 that I was gonna make a curtain of origami whales that represented the number of whales killed since 1986 when the whaling moratorium was supposed to go in effect. And that number was around 25,000 and when I was getting committed to the campaign that number was getting more and more towards 30,000. So with the help of schools and youth groups and people making whales and sending them to me and volunteers that I organized to hand stitch this curtain we did get the 30,000. And I took this curtain to Alaska for the International Whaling Commission meetings and displayed it twice.

Guy: Wow

Peggy: Yeah, kind of wild! So the curtain gets updated each year to represent the number of whales killed. It's a really cool exhibit. It's massive. It takes the space of about 50 by 100 feet.

Guy: So you think art is an effective way at promoting conservation to children and others?

Peggy: Well I think art can be one approach. For some people it is difficult to actually see images of whales being killed. And sometimes people cannot really grasp what that number means when they see it on the news. Oh well this many whales got killed last year. So I decided why not make something that people can walk through [the curtain of 30,000+ origami whales], sort of like a maze they can walk through and just see these thousands of whales and there is these messages that people wrote on these whales with things like "Don't kill me" and you know. And then yeah it is pretty cool. A lot of people come out and say "wow that was really cool thanks!" And then other people come out in tears and say "wow that is so many whales that are being killed". So I think there are many ways of educating people and that's just one of them through my art.

Jess: So what do you think are some of things the general public can do to help with Māui dolphin conservation?

Peggy: I would say continue to raise awareness to everyone. Talk to your friends about what is happening to the Māui and Hector's dolphins. Because the Hector's dolphins are becoming critically endangered, their population is down by 25% of the original estimate before gill net trawling happened. So continue to raise awareness as much as you can. You know I post all over Facebook and people can do that through social networks and then to also keep pressuring the New Zealand government. And hopefully the next elections, vote out the current government. There are not gonna like hearing me say that but that is what needs to be done. It needs to be a government that is much more conservation minded and thinking about preserving the species and protecting them.

Guy: Why do you think they are not conservation minded right now?

Peggy: Because they are greedy. The current government seems to see only the financial value of the environment rather than the actual long term life supporting value of the environment. You know taking out species and impacting the oceans you know something like even a disaster of oil spills would ruin New Zealand. They are so short sighted right

now. They are only seeing these oil companies tempting them with all this money and capital and “Oh oil is worth so much!” But if there is something like an environmental disaster in their seas, since New Zealand is so big on their fisheries, and their tourism. Imagine a quarter of their beaches being covered in oil. So yeah, they got this New Zealand green and pure image that they market to tourism and they are not really being true to that right now. And you know if they remain true to that as a resource, then there is a lot more hope for a long term plan for New Zealand and financial success I think.

Jess: What do you think more DOC can do besides policy changes?

Peggy: Well I am not a 100% sure of everything DOC is doing. I know they do seem they want to raise awareness about Māui and Hector’s dolphins and they are the ones who you call when there are sightings. So I don’t really have a good answer to that besides continuing to raise awareness. Whatever they can do to reach out to the whole country of New Zealand especially and just educate them about what is going on with the different animals that are endangered and the resources. And you know I asked you oh is there a project on the yellow eyed penguin and the sea lion and other species that are endangered that require more protection. So whatever they can do to educate the public and really reach out to the whole country.

Jess: So as a surfer what do you think is the best method would be to communicate to surfers about how to report sightings and things like that to get them aware?

Peggy: Well anytime I talk to a surfer or somebody who saw a Māui dolphin, I always say to them did you call in the sighting? And they go oh no! And I just urge them to call that hotline number. So yeah, the people around here know me as the dolphin lady or whale woman and so if they see a dolphin or whale or something they tell me about. But yeah it is important for them to call so that they know where a Māui dolphin was seen. Because off of Taranaki they keep claiming they never seen a Māui dolphin in decades or whatever but you know especially down there if there are any surfers it would be good to reach out to those surfers and say if you ever see a Māui dolphin you gotta report it so it is on record. If it is reported to DOC about a sighting down in Taranaki then there are dolphins down there and they need to be protected.

Jess: Do you think surfers have a special connection to Māui dolphins because they are always in the water?

Peggy: I can’t say necessarily that all surfers but I think a lot do that have encounters with the dolphins. Because the dolphins will often surf the waves with us which is pretty neat. And hoping they will get a feeling of a stronger connection with the dolphins and wanting to do more with that experience. That is what happened for me!

Guy: Do you think surfers have a stronger connection to all the marine environment because they are always out on the water, or is something else besides that?

Peggy: I couldn’t really put all the surfers into that category because some of them don’t surf for the reasons that I do. The things that really mean a lot to me like being connected to nature and the ocean. But you know there’s people like surfers like Dave Rastovich, who came out here about four years ago, and since he is such high profile and can get a lot of peoples attentions and talk to them and say “hey if you see Māui dolphins make sure you

call it in to DOC!" Then he came back for almost four years and did a long paddle from Taranaki to the Piha area to raise awareness of the Māui dolphin. It was really neat because towards the end of the trip he ran into some rough waters and he was paddling by himself and then these Māui came and they escorted him. It was pretty neat. He was someone to look up because he did a documentary called "Minds in the Water" and he has been quite an activist for dolphins and whales. I invited him to come to New Zealand and to come to Māui Dolphin Day and he did!

Jess: Why do you think Raglan is important in Māui dolphin conservation?

Peggy: I think everywhere is important in Māui dolphin conservation but Raglan has a great community with a lot of people who are really environmentally minded. I call it the epicenter of Māui dolphin populations as far as the sightings and encounters with people. I don't really hear of other sightings besides Piha. It is a really great community and I just hope we can spread that love out through networking.

Jess: So what do you see as your future involvement in Māui dolphin conservation?

Peggy: Each year I try to come up with different ways to have an art activity for Māui Dolphin Day and I am just planning on continuing to do what I can. I started a "Let's Face It" campaign which I call a visual petition so portraits of people with some sort of image, it could be some sort of artwork, or drawing or painting or photograph of a Māui's dolphin or even the replica that DOC has. And we have been basically just collecting those photos and posting them on our website and we have about 1,800 right now. So I hope to keep that going. Last year, I did last year and the year before called "Stand Up and Be Counted" and so asking all the participants at Māui Dolphin's Day to come down to the beach there and organize into the shape of a Māui dolphin.

Jess: Yeah we have seen those pictures!

Peggy: Yeah so yeah just trying to spread the word and about six or seven years ago I made a curtain of 1,111 origami Māui dolphins. About that time there was 111 Māui's dolphins but now there is only half that amount.

Guy: How do you think Raglan could spread its conservation efforts to other coastal communities?

Peggy: Well I would think that hopefully networking on Facebook and other social networks to post news about the Māui dolphins and then talking of course to their friends and friends and relatives when they go visit them at other places. There is a lot of people who go to the east coast and go down south and they could talk about.

Lukas: I think we hit all the main points but is there anything else you would like to share with us that maybe we missed?

Peggy: I would say that it is really important to keep pressuring the New Zealand government and to encourage everyone who's of voting age to vote next time around to vote that government out if they don't do what's needed to protect these dolphins and protect the whole New Zealand environment. It's something like I was saying the perceived value of protecting the environment has to be realized. Like it is important to protect your water, your land, your trees, your ocean because it is all connected. And ultimately it boils

down to the health. And this current government does not seem to care. So just getting people to vote for a government that will help protect the environment and its creatures.